





Digitized by the Internet Archive  
in 2016

<https://archive.org/details/arizonamedicinej38unse>







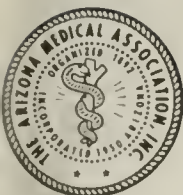












# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

(ISSN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

## SEMINARS IN CONTINUING EDUCATION

### CARDIOLOGY

- Clinical Applications of the  
Intra-Aortic Balloon Pump .....19  
*Neil G. Steinhoff, M.D., et al*

### MEDICAL GENETICS

- Screening People of Jewish  
Origin for Tay-Sachs  
Disease Carriers .....21  
*Frederick Hecht, M.D.*

### NEUROLOGY

- Trans-sphenoidal Hypophysectomy  
For Intractable Cancer Pain .....23  
*Volker K.H. Sonntag, M.D.*

### ONCOLOGY

- Management of Primary  
Brain Tumors in Adults .....26  
*Jack H. Dunn, M.D., et al*

### PSYCHIATRIC DISORDERS

- A Two-Day Sexuality Workshop  
For OB-GYN Residents .....28  
*Rosalyn Meadow, M.A., et al*

### RADIOLOGY

- Case of the Month #49 ..... 32  
*Luther Creed, M.D., et al*

### SURGERY

- Regional Anatomy Regarding the  
Placement of Central  
Venous Cannulas ..... 33  
*L. M. Cobb, M.D., et al*

## SPECIAL ARTICLE

- Beyond Medicaid ..... 37  
*Andrew W. Nichols, M.D., M.P.H.*

## CORRESPONDENCE

## EDITORIALS

- Prescription Drug Misuse,  
Abuse and Diversion ..... 46  
*John T. Clymer, M.D.*
- Do We Need a Hospital  
On Every Corner? .....47  
*Marshall B. Block, M.D.*
- Genetic Counseling ..... 47  
*Lewis Shenker, M.D., et al*
- New State Auxiliary Project  
Teaches Good Health Habits .....48

## ARMA REPORTS

## COMINGS & GOINGS

## FUTURE MEETINGS

LIBRARY  
U.C. SAN FRANCISCO

AN 5 11 1981

///III, NO. 1

THE LIBRARY, ACQUISITIONS DIV.  
U. OF CALIF., S.F. 94143  
SAN FRANCISCO, CA. 94143

# half-life

## Just one built-in advantage

**Ensures smooth therapeutic effect even if a dose is missed** The relatively longer half-life of Valium® (diazepam/Roche) has important clinical and pharmacological implications. Steady-state levels generally are reached within 5-7 days with no further accumulation. At this plateau, the patient benefits from the consistent, steady response you expect. Sharp blood level variations, frequently attributed to agents with a short half-life, do not appear with Valium.

**Avoids sudden symptom breakthrough**

Once steady-state levels are achieved, sudden reemergence of symptoms is unlikely. Diazepam and its active metabolites exhibit overlapping half-lives that are advantageous not only during therapy but especially when pharmacologic support is discontinued.

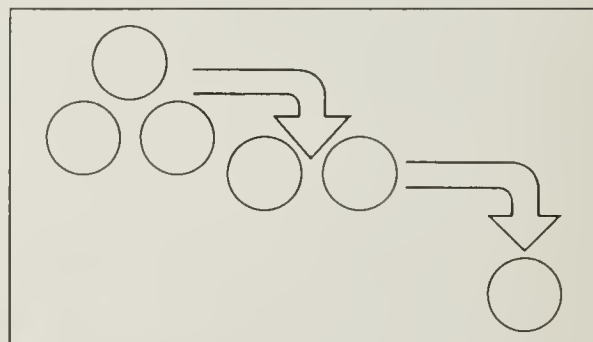
Elimination rates are gradual with Valium and thus provide a compatible adjustment interval for

the patient. In comparison, blood levels of short-acting agents with inactive metabolites decrease more rapidly and are more likely to be associated with withdrawal symptoms if medication is stopped abruptly.\* With Valium unwanted effects other than drowsiness or ataxia are rare. Patients should be cautioned about driving and advised to avoid alcohol.

**Tapers naturally; complements gradual dosage reduction at discontinuation**

When any psychoactive medication is discontinued, it is good medical practice to gradually reduce the dosage. From your own experience you know this is rarely necessary after a short course of Valium therapy, but for patients on extended therapy, gradual reduction of dosage is advisable. This regimen, along with the self-tapering feature of Valium, provides a smooth transition to independent coping.

\*Sellers EM: *Drug Metab Rev* 8(1):5-11, 1978



*in the management of  
symptoms of anxiety*

**Valium®**  
diazepam/Roche  
2-mg, 5-mg, 10-mg scored tablets

*effective therapy through  
efficient pharmacodynamics*



# Valium® diazepam/Roche

**Before prescribing, please consult complete product information, a summary of which follows:**

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety, symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, atetosis, stiff-man syndrome, convulsive disorders (not for sole therapy)

The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication, abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

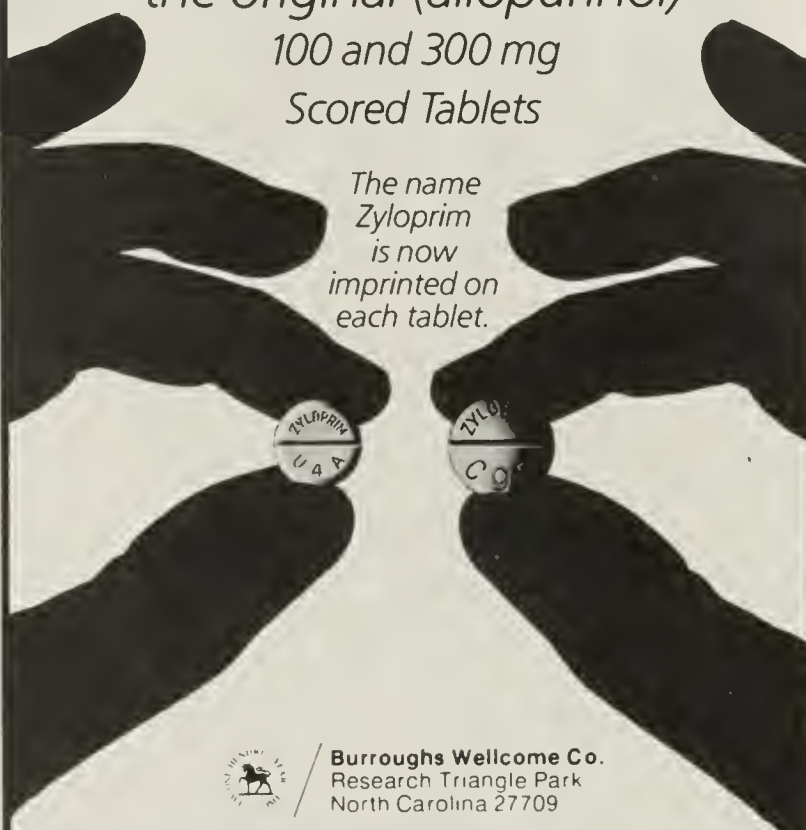
**ROCHE** Roche Laboratories  
Division of Hoffmann-La Roche Inc.  
© Nutley, New Jersey 07110

Remember

## ZYLOPRIM®

the original (allopurinol)

100 and 300 mg  
Scored Tablets



The name  
Zyloprim  
is now  
imprinted on  
each tablet.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709

*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.

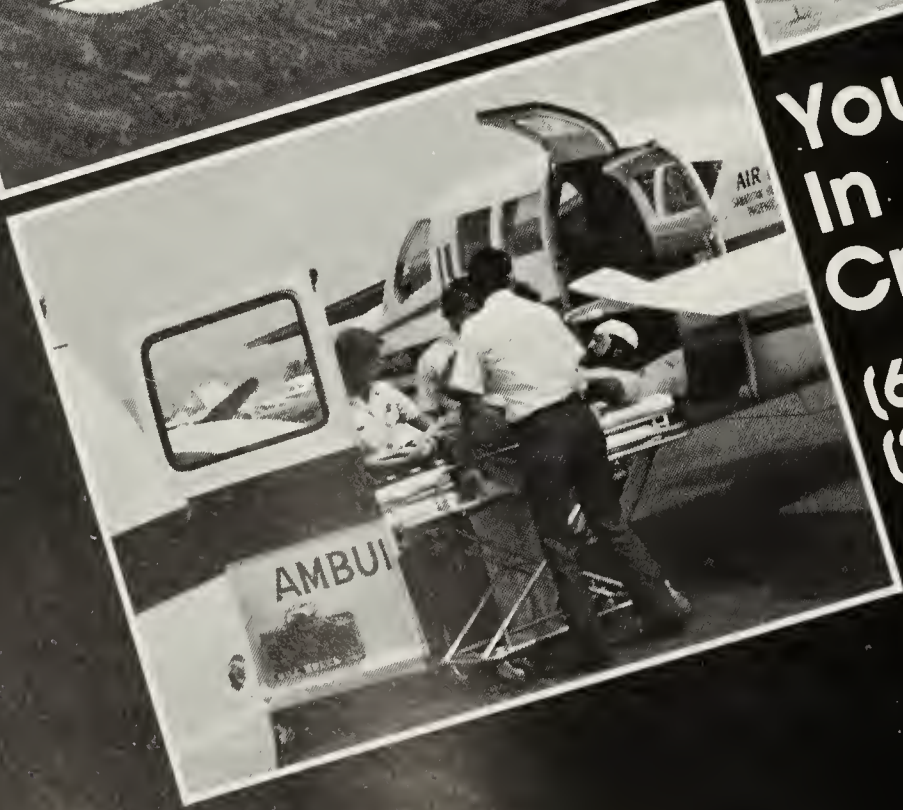
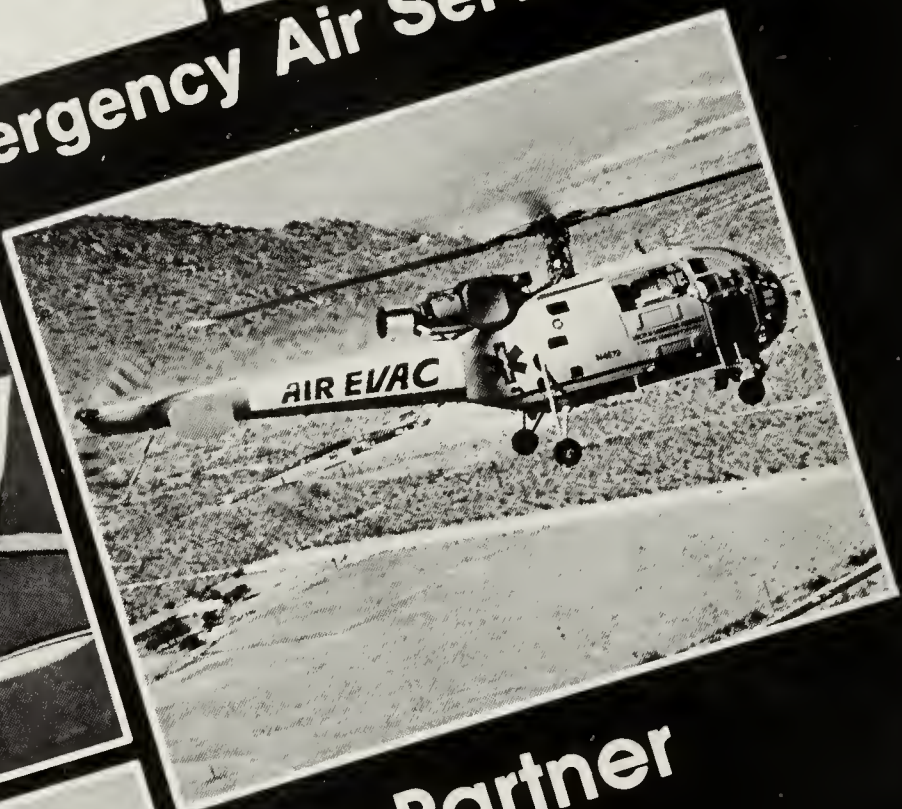
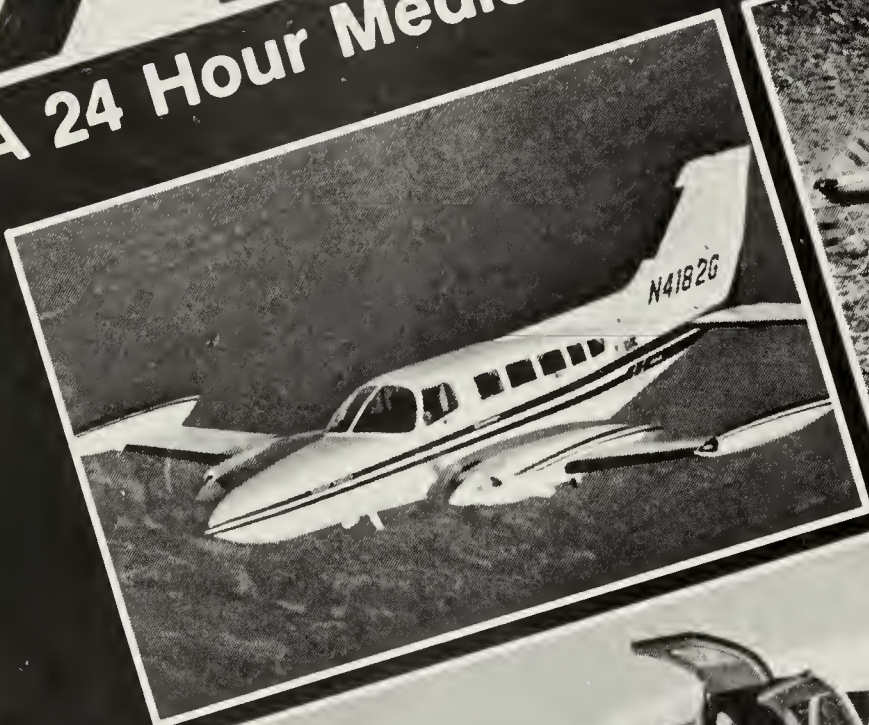
377801



Lincoln Samaritan

# AIR EVAC

A 24 Hour Medical Emergency Air Service



**Your Partner  
In  
Critical Care**  
(602) A-I-R-E-V-A-C  
(247-3822)

Our name is our number  
Serving Arizona and the Nation  
Since 1969



# Another good reason to insure with MICA is YOUR right to settle.

MICA cannot settle a claim or suit without the permission of the policyholder. Most other malpractice insurance companies retain the right to settle ANY claim or suit without the doctor's permission.

MICA's primary concern is that of the physicians and their professional reputations rather than dollars. Plaintiffs' attorneys have learned that MICA will not be settling non-meritorious claims in order to save defense dollars.

**For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402**

MICA MICA **MICA** MICA

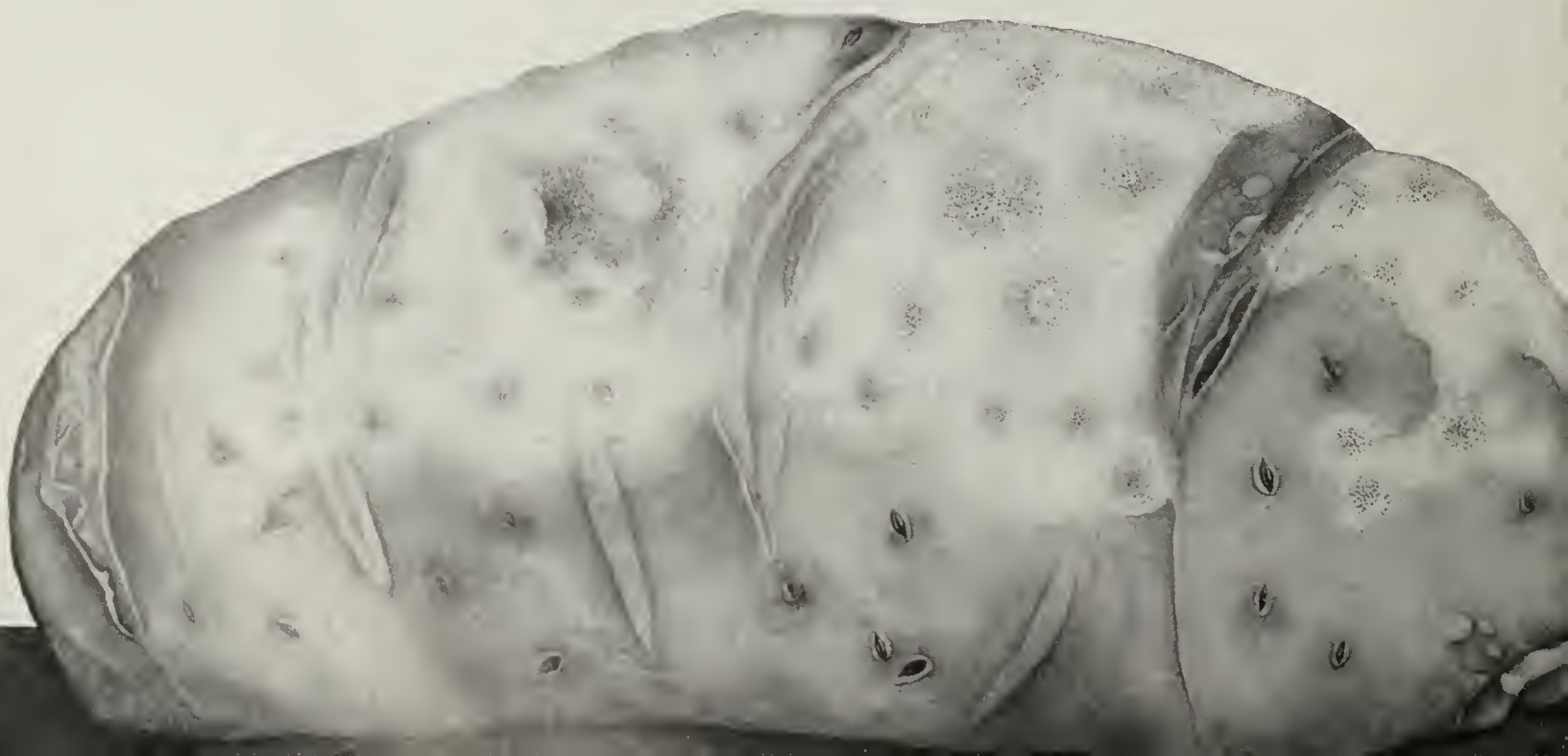
**MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by the Arizona Medical Association.**

# Yesterday's Folk Remedy:

## A rye loaf in the rafters.



Early in this century in Central Europe, almost every farm family kept a loaf of moldy rye bread on one of the kitchen beams. When any family member was cut or bruised, it was an old custom to cut a thin slice from the outside of the loaf, mix it into a paste with water, and apply it to the wound with a bandage. It was believed that no infection would then result from the cut.<sup>1</sup>





# Today's Tradition: **Tegopen**<sup>®</sup> (cloxacillin sodium)

for the treatment\* of  
known or suspected  
staphylococcal  
infections such as:

- Acute sinusitis
- Furunculosis and carbuncles
- Impetigo
- Secondarily infected dermatitis
- Cellulitis
- Abscesses
- Infected sebaceous cysts

In serious, deep-seated  
staph infections, 500 mg  
q.i.d. dosage is  
recommended.<sup>†</sup>

- Tegopen has been reported active against 96% of *Staphylococcus aureus*.<sup>2</sup>
- 80% of *S aureus* has been reported resistant to amoxicillin and ampicillin. ‡<sup>2</sup>
- 88% of *S aureus* has been reported resistant to penicillins G and V. ‡<sup>2</sup>
- Staph resistance to erythromycin may develop during a course of therapy.<sup>3</sup>



Available as 500-mg and 250-mg capsules  
and Oral Solution 125 mg/5 ml.

## **Tegopen**<sup>®</sup> (cloxacillin sodium) Today's Penicillin for Today's Physician

1. Florey HW, Chain E, Heatley NG, et al: *Antibiotics*. London, Oxford University Press, 1949, p 2.
2. Bac-Data Bacteriologic Report, Professional Market Research, 1978-1979. The clinical significance of *in vitro* data is unknown.
3. Erythromycin prescribing information (in *Physicians' Desk Reference*, ed 34. Oradell, NJ, Medical Economics Co, 1980) states that staph resistance may develop during treatment.

See brief summary of prescribing information on  
an adjoining page.

Copyright © 1981, Bristol Laboratories

\*Note: The choice of Tegopen should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci, Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the bacteriology report later indicates that the infection is due to an organism other than a penicillin G-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semisynthetic penicillin.

†In serious, life-threatening infections, oral preparations of the penicillinase-resistant penicillins should not be relied on for initial therapy.

‡Not all isolates may have been tested using both discs.

# Tegopen<sup>®</sup>

(cloxacillin sodium)

Capsules and Oral Solution

## Brief Summary of Prescribing Information

For complete information, consult Official Package Circular  
(12) 9/11/75

### INDICATIONS.

Although the principal indication for cloxacillin sodium is in the treatment of infections due to penicillinase-producing staphylococci, it may be used to initiate therapy in such patients in whom a staphylococcal infection is suspected. (See Important Note below.) Bacteriologic studies to determine the causative organisms and their sensitivity to cloxacillin sodium should be performed.

### IMPORTANT NOTE

When it is judged necessary that treatment be initiated before definitive culture and sensitivity results are known, the choice of cloxacillin sodium should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci, Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the bacteriology report later indicates the infection is due to an organism other than a penicillin G-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semi-synthetic penicillin.

Recent studies have reported that the percentage of staphylococcal isolates resistant to penicillin G outside the hospital is increasing, approximating the high percentage of resistant staphylococcal isolates found in the hospital. For this reason, it is recommended that a penicillinase-resistant penicillin be used as initial therapy for any suspected staphylococcal infection until culture and sensitivity results are known.

Cloxacillin sodium is a compound that acts through a mechanism similar to that of methicillin against penicillin G-resistant staphylococci. Strains of staphylococci resistant to methicillin have existed in nature and it is known that the number of these strains reported has been increasing. Such strains of staphylococci have been capable of producing serious disease, in some instances resulting in fatality. Because of this, there is concern that widespread use of the penicillinase-resistant penicillins may result in the appearance of an increasing number of staphylococcal strains which are resistant to these penicillins.

Methicillin-resistant strains are almost always resistant to all other penicillinase-resistant penicillins (cross-resistance with cephalosporin derivatives also occurs frequently). Resistance to any penicillinase-resistant penicillin should be interpreted as evidence of clinical resistance to all, in spite of the fact that minor variations in *in vitro* sensitivity may be encountered when more than one penicillinase-resistant penicillin is tested against the same strain of staphylococcus.

### CONTRAINDICATIONS:

A history of a previous hypersensitivity reaction to any of the penicillins is a contraindication.

### WARNING:

Serious and occasionally fatal hypersensitivity (anaphylactoid) reactions have been reported in patients on penicillin therapy. Although anaphylaxis is more frequent following parenteral therapy it has occurred in patients on oral penicillins. These reactions are more apt to occur in individuals with a history of sensitivity to multiple allergens.

There have been well documented reports of individuals with a history of penicillin hypersensitivity reactions who have experienced severe hypersensitivity reactions when treated with a cephalosporin. Before therapy with a penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, and other allergens. If an allergic reaction occurs, the drug should be discontinued and the patient treated with the usual agents, e.g., pressor amines, antihistamines, and corticosteroids.

Safety for use in pregnancy has not been established.

### PRECAUTIONS:

The possibility of the occurrence of superinfections with mycotic organisms or other pathogens should be kept in mind when using this compound, as with other antibiotics. If superinfection occurs during therapy, appropriate measures should be taken.

As with any potent drug, periodic assessment of organ system function, including renal, hepatic, and hematopoietic, should be made during long-term therapy.

### ADVERSE REACTIONS:

Gastrointestinal disturbances, such as nausea, epigastric discomfort, flatulence, and loose stools, have been noted by some patients. Mildly elevated SGOT levels (less than 100 units) have been reported in a few patients for whom pretherapeutic determinations were not made. Skin rashes and allergic symptoms, including wheezing and sneezing, have occasionally been encountered. Eosinophilia, with or without overt allergic manifestations, has been noted in some patients during therapy.

### USUAL DOSAGE:

Adults 250 mg q 6h

Children 50 mg /Kg /day in equally divided doses q 6h. Children weighing more than 20 Kg should be given the adult dose. Administer on empty stomach for maximum absorption.

**N.B. - INFECTIONS CAUSED BY GROUP A BETA-HEMOLYTIC STREPTOCOCCI SHOULD BE TREATED FOR AT LEAST 10 DAYS TO HELP PREVENT THE OCCURRENCE OF ACUTE RHEUMATIC FEVER OR ACUTE GLOMERULONEPHRITIS.**

### SUPPLIED:

Capsules—250 mg. in bottles of 100. 500 mg. in bottles of 100.  
Oral Solution—125 mg /5 ml. in 100 ml. and 200 ml. bottles.

**BRISTOL<sup>®</sup>**

Bristol Laboratories  
Division of Bristol-Myers Company  
Syracuse, New York 13201

## Valley Prosthetics, Inc.

*announces that*

**Vernon H. Lehde**

**Certified Prosthetist—Orthotist**

has recently joined the staff of  
Valley Prosthetics with

55 years past experience, adding

**Orthopedic Appliances**

to its other services of

**Artificial Limbs, Medical Equipment**

**Rental and Handicab Service.**

**Telephone for appointment-894-0145**  
**734 E. Broadway, Tempe, Arizona**

## MANAGEMENT ADVICE

**PHILIP  
KWART**

MEMBER  
**SMD**

**AMANDA  
WEAVER**

SOCIETY OF MEDICAL-DENTAL MANAGEMENT CONSULTANTS

ASSISTANCE WITH NEW AND ON-GOING  
PRACTICES IN-

- LOCATION
- STAFFING
- CASH CONTROL
- FACILITY DESIGN
- NEGOTIATIONS
- COLLECTION PROCEDURES
- EFFICIENT BUSINESS SYSTEMS  
AND PROCEDURES
- OBJECTIVE REVIEW OF  
PROPOSED INVESTMENTS
- SEARCH, REVIEW, AND ADDITIONS  
TO PROFESSIONAL STAFF  
— AND —

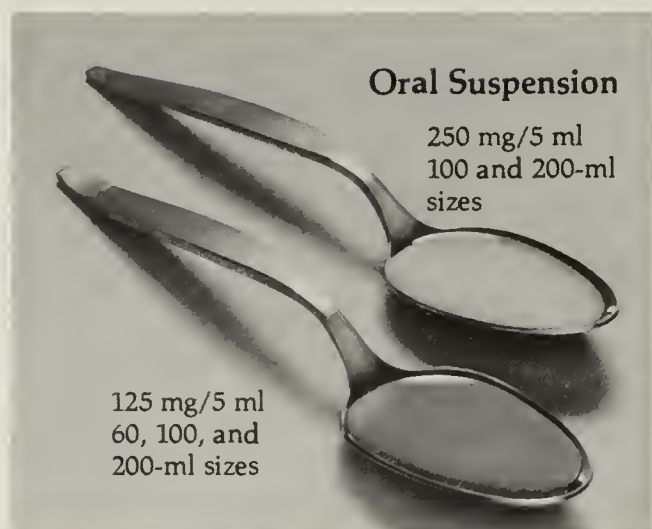
**WE HAVE NOTHING TO SELL!**

WE ARE STRICTLY FEE-FOR-SERVICE  
PHONE: (602) 264-3803

**MEDICAL BUSINESS CONSULTANTS**  
3225 NORTH CENTRAL AVE., SUITE 314  
PHOENIX, ARIZONA 85012



# easy to take



# Keflex®

cephalexin

Additional information available  
to the profession on request.



000823

**Dista Products Company**  
Division of Eli Lilly and Company  
Indianapolis, Indiana 46285  
Mfd. by Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630

# Local families find young adult treatment program helps solve serious problems.

The period from approximately 18 to 25 years of age can be the most difficult of a lifetime.

It is a time of change, decision-making and responsibility-taking. Young adults are pulled in every direction, and many are not prepared for the sudden transition from childhood to adulthood.

Confusion, anxiety, a sense of failure and depression are overwhelming experiences for the young adult, and the use of drugs and alcohol only make things worse. As a result, the young adult is often immobilized by uncertainty.

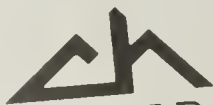
At Scottsdale Camelback Hospital, our Young Adult Treatment Program works closely with such young people to stabilize their emotions and alleviate symptoms. The program lays a foundation for growth and development. Values are clarified. Career goals are examined.

The program has been instrumental in solving serious problems for a number of families faced with the need to assist a young adult during this trying period. If such a problem is occurring in your family, you are urged to consult your physician about our program, or to call Scottsdale Camelback Hospital for further details.

Camelback Hospitals are among the leading psychiatric centers of the Southwest. An open medical staff of more than 60 psychiatrists, as well as psychologists, psychiatric nurses, social workers and activity therapists provide 24-hour care. Camelback Hospitals and Camelback Mental Health Center are fully accredited and licensed by the State of Arizona.

There are specialized programs for adolescents (13-17 years of age) at our Phoenix Camelback Hospital.

For further information, consult your physician or call us today.

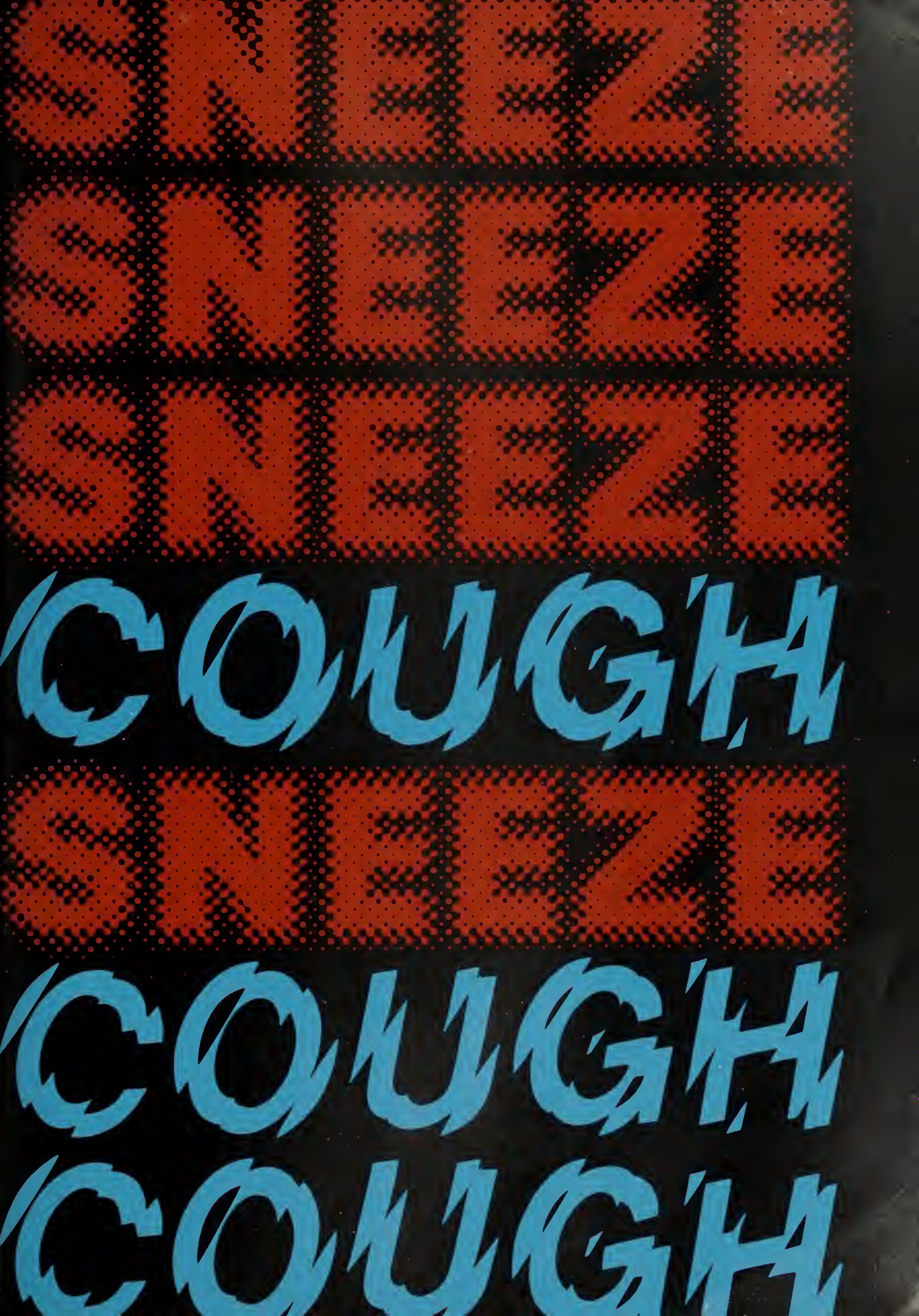


**SCOTTSDALE CAMELBACK HOSPITAL**  
7575 E. Earll Drive Scottsdale, AZ 85251 Phone: 941-1108

*Doctor —  
This newspaper  
has been scheduled  
in leading Valley  
newspapers.*

*Daniel W. Capps,  
President Camelback  
Hospitals*





COUGH

COUGH

COUGH



# For Sneezing and Nasal Congestion



## RU-TUSS<sup>®</sup> TABLETS

Each prolonged action tablet contains:

|                                             |         |
|---------------------------------------------|---------|
| Phenylephrine Hydrochloride . . . . .       | 25 mg   |
| Phenylpropanolamine Hydrochloride . . . . . | 50 mg   |
| Chlorpheniramine Maleate . . . . .          | 8 mg    |
| Hyoscyamine Sulfate . . . . .               | 0.19 mg |
| Atropine Sulfate . . . . .                  | 0.04 mg |
| Scopolamine Hydrobromide . . . . .          | 0.01 mg |

Ru-Tuss Tablets act continuously for 10 to 12 hours.

- Vasoconstrictor, antihistaminic actions
- Rapid and prolonged relief of nasal and sinus congestion
- Convenient b.i.d. dosage



Boots Pharmaceuticals, Inc.  
Pioneers in Medicine



# For Coughing With Nasal and Bronchial Congestion



## RU-TUSS EXPECTORANT

Each fluid ounce of Ru-Tuss Expectorant contains:

|                                   |         |
|-----------------------------------|---------|
| Codeine Phosphate                 | 65.8 mg |
| (WARNING: MAY BE HABIT FORMING)   |         |
| Phenylephrine Hydrochloride       | 30 mg   |
| Phenylpropanolamine Hydrochloride | 20 mg   |
| Pheniramine Maleate               | 20 mg   |
| Pyrilamine Maleate                | 20 mg   |
| Ammonium Chloride                 | 200 mg  |
| Alcohol                           | 5%      |

- Vasoconstrictor, antihistaminic, expectorant actions with codeine
- Rapid relief of upper respiratory congestion and cough
- Good tasting

# SNEEZE

## RU-TUSS<sup>®</sup> TABLETS

### DESCRIPTION

Each prolonged action tablet contains

|                                   |         |
|-----------------------------------|---------|
| Phenylephrine Hydrochloride       | 25 mg   |
| Phenylpropanolamine Hydrochloride | 50 mg   |
| Chlorpheniramine Maleate          | 8 mg    |
| Hyoscyamine Sulfate               | 0.19 mg |
| Atropine Sulfate                  | 0.04 mg |
| Scopolamine Hydrobromide          | 0.01 mg |

Ru-Tuss Tablets act continuously for 10 to 12 hours

Ru-Tuss Tablets are an oral antihistaminic, nasal decongestant and anti-secretory preparation.

**INDICATIONS AND USAGE** Ru-Tuss Tablets provide relief of the symptoms resulting from irritation of sinus, nasal and upper respiratory tract tissues. Phenylephrine and phenylpropanolamine combine to exert a vasoconstrictive and decongestive action while chlorpheniramine maleate decreases the symptoms of watering eyes, post nasal drip and sneezing which may be associated with an allergic-like response. The belladonna alkaloids, hyoscyamine, atropine and scopolamine further augment the anti-secretory activity of Ru-Tuss Tablets.

**CONTRAINDICATIONS** Hypersensitivity to antihistamines or sympathomimetics. Ru-Tuss Tablets are contraindicated in children under 12 years of age and in patients with glaucoma, bronchial asthma and women who are pregnant. Concomitant use of MAO inhibitors is contraindicated.

**WARNINGS** Ru-Tuss Tablets may cause drowsiness. Patients should be warned of the possible additive effects caused by taking antihistamines with alcohol, hypnotics, sedatives or tranquilizers.

**PRECAUTIONS** Ru-Tuss Tablets contain belladonna alkaloids, and must be administered with care to those patients with glaucoma, or urinary bladder neck obstruction. Caution should be exercised when Ru-Tuss Tablets are given to patients with hypertension, cardiac or peripheral vascular disease or hyperthyroidism. Patients should avoid driving a motor vehicle or operating dangerous machinery (See Warnings).

**OVERDOSAGE** Since the action of sustained release products may continue for as long as 12 hours, treatment of overdoses directed at reversing the effects of the drug and supporting the patient should be maintained for at least that length of time. Saline cathartics are useful for hastening evacuation of unreleased medication. In children and infants, antihistamine overdosage may produce convulsions and death.

**ADVERSE REACTIONS** Hypersensitivity reactions such as rash, urticaria, leukopenia, agranulocytosis, and thrombocytopenia may occur. Other adverse reactions to Ru-Tuss Tablets may be drowsiness, lassitude, giddiness, dryness of the mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, tachycardia, hypotension/hypertension, faintness, dizziness, tinnitus, headache, incoordination, visual disturbances, mydriasis, xerostomia, blurred vision, anorexia, nausea, vomiting, diarrhea, constipation, epigastric distress, hyperirritability, nervousness, dizziness and insomnia. Large overdoses may cause tachypnea, delirium, fever, stupor, coma and respiratory failure.

**DOSAGE AND ADMINISTRATION** Adults and children over 12 years of age, one tablet morning and evening. Not recommended for children under 12 years of age. Tablets are to be swallowed whole.

### HOW SUPPLIED:

Bottles of 100 Tablets

Bottles of 500 Tablets

Federal law prohibits dispensing without prescription

NDC 0524-0058-01

NDC 0524-0058-05

# COUGH

## RU-TUSS<sup>®</sup> EXPECTORANT

### DESCRIPTION

Each fluid ounce of Ru-Tuss Expectorant contains:

|                                   |       |
|-----------------------------------|-------|
| Codeine Phosphate                 | 65.8r |
| (WARNING: MAY BE HABIT FORMING)   |       |
| Phenylephrine Hydrochloride       | 30r   |
| Phenylpropanolamine Hydrochloride | 20r   |
| Pheniramine Maleate               | 20r   |
| Pyriminamine Maleate              | 20r   |
| Ammonium Chloride                 | 200r  |
| Alcohol                           |       |

Ru-Tuss Expectorant is an oral antitussive, antihistaminic, nasal decongestant and expectorant preparation.

**INDICATIONS AND USAGE** Ru-Tuss Expectorant is indicated for symptomatic relief of upper respiratory congestion associated with pharyngitis, tracheitis, bronchitis, or allergic rhinitis. Also, for the temporary relief of symptoms associated with hay fever, allergies, nasal congestion and cough due to the common cold.

**CONTRAINDICATIONS** Hypersensitivity to antihistamines. Concomitant use of an antihypertensive or antidepressant drug containing a monoamine oxidase inhibitor is contraindicated.

Ru-Tuss Expectorant is contraindicated in patients with glaucoma, bronchial asthma and in women who are pregnant.

**WARNINGS** Ru-Tuss Expectorant contains codeine phosphate, therefore, the patient should be warned of the potential that this drug may be habit forming. Ru-Tuss Expectorant may cause drowsiness. Patients should be warned of the possible additive effects caused by taking antihistamines with alcohol, hypnotics, sedatives and tranquilizers.

**PRECAUTIONS** Patients taking Ru-Tuss Expectorant should avoid driving a motor vehicle or operating dangerous machinery (See Warnings). Caution should be taken with patients having hypertension, diabetes, hyperthyroidism and cardiovascular disease. Caution should also be used in patients with pulmonary, hepatic or renal insufficiency.

**ADVERSE REACTIONS** Ru-Tuss Expectorant may cause drowsiness, lassitude, giddiness, dryness of mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, tachycardia, hypotension/hypertension, faintness, dizziness, tinnitus, headache, incoordination, visual disturbances, mydriasis, xerostomia, blurred vision, anorexia, nausea, vomiting, diarrhea, constipation, epigastric distress, hyperirritability, nervousness and insomnia. Overdoses may cause restlessness, excitation, delirium, tremors, euphoria, metabolic acidosis, stupor, tachycardia and even convulsions.

**DOSAGE AND ADMINISTRATION** Adults: 1 or 2 teaspoonfuls, orally, every 4 hours, not to exceed 10 teaspoonfuls in any 24-hour period.

Children 6 to 12 years of age: ½ the adult dose, not to exceed 6 teaspoonfuls in any 24-hour period. Children 2 to 6 years of age: ¼ teaspoonful every 4 hours, not to exceed 3 teaspoonfuls in any 24-hour period. Children under 2 years of age: Use as directed by a physician.

### HOW SUPPLIED

Pint bottles (16 fl. oz.)

Federal law prohibits dispensing without prescription

NDC 0524-1010

### DISTRIBUTED BY:

Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

### MANUFACTURED BY:

Vitarine Company, Inc.  
Springfield Gardens, New York 11413



Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

Pioneers in Medicine For the Family



# YES DOCTOR

You and your colleagues can own  
THE MEDICAL OFFICE BUILDING  
you've been discussing. . .

## with 100% FINANCING



TOTAL SERVICE CONCEPT



Does site selection, zoning and land purchasing.



Selects and specifies all building materials.



Handles all architectural, engineering, and electrical.



Creates landscape design.



Provides economic feasibility studies, arranges all legal and accounting work.



Obtains equipment leasing, computer billing, interior design.



Prepares tenant leases—recruits additional tenants.



Prepares financial statement, puts together loan applications for permanent and construction loans.

PLUS OBTAIN

### all equity cash required for a total turn-key project

(ONE GUARANTEED PRICE)

CALL LEN KAPLAN (714) 481-1274

HE'D LIKE TO ANSWER YOUR  
QUESTIONS  
AND PERHAPS ARRANGE A MEETING

HEALTH FACILITIES DEVELOPMENT INC.  
777 S. Pacific Coast Hwy. #206  
Solana Beach, Ca. 92075

Your concept sounds interesting!

- ☐ We would like you to meet with our group to discuss the possibility of developing our own medical office building.
- ☐ Our group is very much interested in your medical office building concept, we would however like to ask a few questions pertaining to our project.

DR/MR/MS \_\_\_\_\_

ADDRESS \_\_\_\_\_

TEL. \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

ZIP \_\_\_\_\_



## From One Specialist To Another...

We are proud to service the printing  
needs of Arizona's medical and  
pharmaceutical professions.

**ALLIED ENVELOPE  
& PRINTING, INC.**

**ae** 1323 East McDowell Road  
Phoenix, Arizona 85006  
258-5528

*Printed Envelopes/Letterheads/Medical Forms  
Prescription Pads/Carbonless Forms  
Emergency Service Available — Local Pick-Up & Delivery*

# We're worthy of your trust.



**Old Colony Trust Company  
of Arizona**

AN AFFILIATE OF THE FIRST NATIONAL BANK OF BOSTON

1114 Arizona Title Building • 111 W. Monroe  
Phoenix, Arizona 85003 • (602) 253-6155



## Until now it was paradise for everything but business.

We've got what's been missing in Greater Paradise Valley...one of the first real professional buildings of any size in the area. Paradise Corporate Plaza is 60,000 square feet of lease space with a fourth of the total reserved for medical practices. Imagine nearly two blocks of prime frontage where Shea Boulevard meets Tatum...a high visibility right on Shea that no other office complex can offer.

Life at the office in Paradise Corporate Plaza meets every expectation. Outstanding architecture. Courtyards and fountains. Balconies and terraces. Thoughtfully designed interiors and conveniences.

Doing business where everyone wants to live is a pleasure. Paradise Valley Mall a few blocks north. More great restaurants and shopping every day. Golf courses and country clubs. Fast access to three airports. Everything seems closer from the corner of Paradise's two major trafficways.

For leasing information, write or call: James Pullaro & Company, 10269 N. Scottsdale Road, Scottsdale, Arizona 85253. (602) 991-8400.

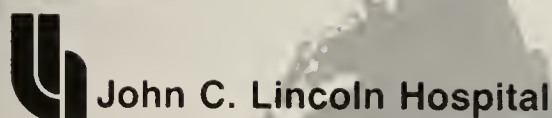
**Paradise Corporate Plaza**



"Created by Martens Development Corporation...over a million square feet of commercial development in the past five years."



# NEW TOLL-FREE 1-800-352-7981



## TRAUMA CENTER Physician Referral Line

A 24-hour direct line to the Trauma Center physician!  
9211 North Second Street — Phoenix, AZ 85020

### computed tomography of the head

### CNS

computed neurological scanning center

Baptist Medical Center • Out Patient Facility  
6036 North 19th Avenue, Suite 207 • Phoenix, Arizona 85015 (602) 242-5859

Alan Yudell, MD—Ralph B. Lilly, MD—Barry A. Hendin, MD



# "100% Collections? Sure. No Problem."



Baloney! People who make claims like this are either kidding you or themselves. In today's world, there's no such thing as "getting it all."

However, the losses can be minimized through creative billing techniques...by collecting your money faster...and, by using proper communication as well as being an expert in government and private insurance programs. The list goes on.

The bottom line is that you get the collectables without the baloney.

## The Anesthesia Office, Inc.

PHOENIX  
Post Office Box 39429  
Phoenix, Arizona 85069  
(602) 242-1908





## Clinical Applications of the Intra-Aortic Balloon Pump

Neil G. Steinhoff, M.D.  
Dwight C. Lundell, M.D.

Editor:  
Kenneth B. Desser, M.D.

The intra-aortic balloon pump (IABP) consists of a roughly cylindrical or fusiform inflatable balloon about 26 cm in length which is attached to the tip of a catheter.<sup>1</sup> The balloon is inflated by increasing the gas pressure in the catheter. Helium or carbon dioxide are used to inflate the balloon because they have low viscosity, allowing rapid alternating movement of gas.<sup>2</sup> Rapid volume changes of the balloon are made by an external control system which is synchronized with the patient's cardiac action. The balloon is inflated and deflated at every cardiac cycle. The electronic part of the pump is triggered by the patient's electrocardiogram or the patient's arterial pressure wave.<sup>3</sup>

The balloon is inserted into the femoral artery and passed retrograde into the descending thoracic aorta (Figure 1). With the synchronization of the patient's electrocardiogram, inflation of the balloon during early diastole results in an increased diastolic arterial pressure. Prompt deflation of the balloon before ventricular systole results in a fall in intra-aortic pressure. The left ventricle ejects, therefore, against a reduced aortic pressure. The left ventricle is thus able to eject a larger volume of blood against a decreased pressure load, resulting in less work.<sup>4</sup> Coronary blood flow to the myocardium occurs primarily during cardiac diastole when the coronary vascular resistance is low. One of the main effects of the IABP is to elevate the diastolic pressure in the aortic root and in the coronary arterial bed, thus increasing the volume of nutrient blood flow to the myocardium during diastole: hence the

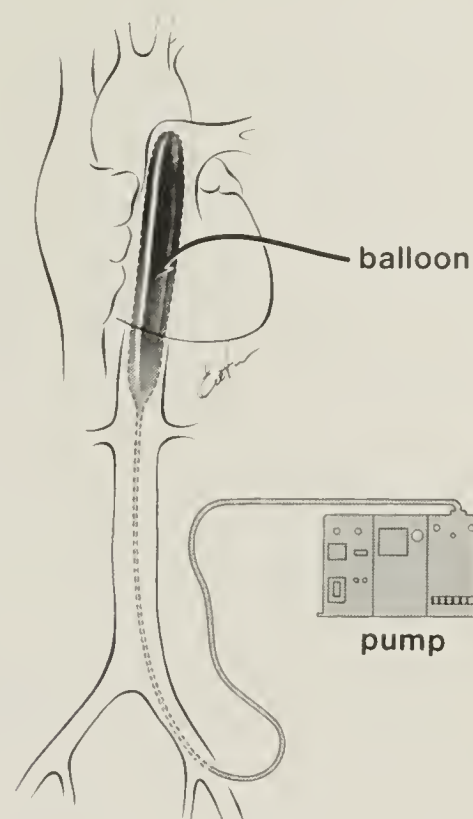


Figure 1  
The intra-aortic balloon is inflated. This occurs during diastole.

term diastolic augmentation.<sup>5</sup> Timing and duration of the inflation-deflation cycle of the balloon are important for maximal diastolic augmentation. Powell has shown that IABP increased coronary blood flow significantly in the failing heart with pre-existing significant reductions in coronary blood flow. If, however, the patient was normotensive with a relatively normal coronary blood flow, IABP would effect no further increase in coronary blood flow.<sup>6</sup> Weber and Janicki confirmed this observation.<sup>7</sup> Gill, et al found increases in subendocardial and transmural coronary blood flow in the ischemic area surrounding a myocardial infarction.<sup>8</sup> The IABP causes an increase in the blood flow to the ischemic areas of myocardium whereas it leaves the non-ischemic area unaffected.<sup>3</sup>

Counterpulsation operates by lowering aortic pressure prior to left ventricular ejection and raising it during diastole. The benefits derived from these alterations of aortic pressure can be considered in terms of changes in myocardial effort and coronary blood flow. Since aortic and ventricular pressures are roughly equal during ejection, lowering the aortic pressure during systole may also reduce peak ventricular systolic pressure. The result is a reduction in the work done by the myocardium. Reduction in left ventricular work also reduces the left ventricular myocardial oxygen consumption. IABP may produce a decreased oxygen

demand and/or an increased delivery of oxygen by increasing coronary blood flow.<sup>9</sup>

## Indications

### 1. Acute myocardial infarction (AMI)

Temporary improvement in systemic perfusion and myocardial performance in patients with acute myocardial infarction has been documented.<sup>10</sup> Long-term survival with IABP alone, however, appears not to be significantly improved over intensive pharmacologic and volume therapy for left ventricular pump failure (LVPF). There appears to be three subsets of patients with LVPF after AMI who are treated with IABP. First is a small group who become stabilized with medical support and IABP alone; second is a group unresponsive to all therapy including IABP; third is the balloon-dependent group which may benefit from surgical revascularization and possible removal of infarcted myocardium. It has been demonstrated that in patients with AMI who die of LVPF, more than 40% of the left ventricle is infarcted by either new or old infarction. In the treatment of cardiogenic shock complicating acute myocardial infarction, the therapeutic goals of mechanical circulatory assistance are to reverse the shock state and to preserve the morphologic and functional integrity of the jeopardized ischemic myocardium. In the clinical setting, when cardiogenic shock has developed, mechanical circulatory assistance probably does not alter the established infarction functionally or morphologically but may prevent further extension or infarction of jeopardized ischemic areas by reducing the left ventricular work load and augmenting coronary blood flow. Therefore mechanical support should begin very early in the course of AMI with LVPF.<sup>11</sup> It would seem that IABP in the current treatment of AMI might be most beneficial in limiting further myocardial destruction in conjunction with pharmacologic interventions or until an increase in the nutrient coronary blood flow can be accomplished by coronary revascularization.

### 2. Complications of myocardial infarction

IABP is effective in stabilizing patients in LVPF from a ventricular septal defect produced by a myocardial infarction or severe mitral regurgitation produced by papillary muscle rupture. Acute mitral regurgitation or rupture of the interventricular septum following myocardial infarction leads to hypotension, pulmonary congestion, and progressive biventricular heart failure. IABP decreases afterload markedly without further decreasing coronary perfusion and reduces the left ventricular work which allows for temporary improvement in the left ventricular hemodynamics both experimentally and in patients with these disorders.<sup>5</sup>

### 3. Pre-infarction angina

In patients with pre-infarction angina, pain, EKG and hemodynamic abnormalities can be relieved or ameliorated by early institution of IABP. Mundth reported 24 patients treated with IABP prior to coronary angiography. These patients subsequently had

successful coronary revascularization surgery. IABP abolished pain, reversed the ST-T wave abnormalities and produced improvement in the altered hemodynamics of 20 to 24 patients.<sup>12</sup>

### 4. Pre and post surgical use of IABP

Many surgeons believe that the most valuable use of this device is in the operating room for those patients who have LVPF after corrective cardiac surgery.<sup>5</sup> It has been used for support of patients with manifestations of LVPF after cardiac surgery with excellent short and long term results. One of its most efficacious uses has been in patients with acute myocardial ischemia in the preoperative period when preparing for a coronary revascularization. Contrary to medical IABP treatment of LVPF, surgical LVPF treated patients may do very well in the long term.

### 5. Arrhythmias

Relatively small areas of myocardium subjected to regional hypoxia may be the source of atrial or ventricular irritability. In medical patients IABP alone has been shown to be effective in reducing the frequency of episodes of ventricular fibrillation, but in a relatively short time IABP became ineffective so that surgical therapy was necessary.

## Complications

Complications in the seriously ill group of patients treated with IABP have been relatively low.<sup>2</sup> Although aortic injury and dissection are often mentioned as possible sequelae, they occur rarely. The most common complications involve the circulation to the legs and the integrity of the iliofemoral arteries. Balloon related infections consist primarily of local infections in the groin. If these are not recognized and treated early, they can lead to septicemia, false aneurysm and local rupture. Voukydis has also noted rare pulmonary, gastrointestinal, and hematological complications.<sup>3</sup>

## Acknowledgement

We would like to acknowledge the assistance of Betty Kjellberg, Medical Librarian, Good Samaritan Hospital, Phoenix, Arizona.

## References

1. Hyson EA, Ravin CE, Kelley MJ, et al: Intraaortic counterpulsation: radiographic considerations. *Am J Roentgenol* 128:915-918, 1977.
2. Amsterdam EA, DeMaria AN, Lee G, et al: Mechanical circulatory assist in acute ischemic heart disease. *Adv Cardiol* 23:142-162, 1978.
3. Voukydis PC, LaRaia PJ: Intraaortic balloon counterpulsation. *Int Anesthesiol Clin* 14(1): 95-118, 1976.
4. Lamberti JJ, Resnekov L: Cardiac assist devices. *Annu Rev Med* 29:571-582, 1978.
5. Cohn LW: Intra-aortic counterpulsation in low cardiac output states. *Surg Clin North Am* 55(3): 545-559, 1975.
6. Powell WJ, Daggett WM, Magro AE, et al: Effects of intra-aortic balloon counterpulsation on cardiac performance, oxygen consumption and coronary blood flow in dogs. *Circ Res* 26:753-764, 1970.
7. Weber KT, Janicki JS: Intra-aortic balloon counterpulsation. *Ann Thorac Surg* 17:602-636, 1974.
8. Gill CC, Wechsler AS, Newman GE, et al: Augmentation and redistribution of myocardial blood flow during acute ischemia by intraaortic balloon pumping. *Ann Thorac Surg* 16:445-453, 1973.



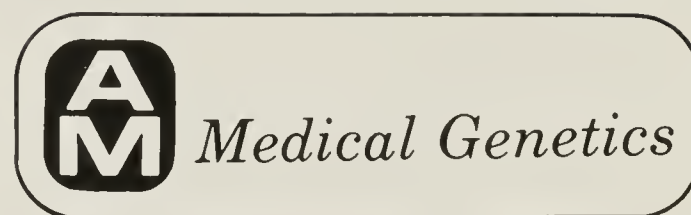
9. AVCO Intra-Aortic Balloon Pump Model 10 Operator's Manual. Cranbury, N.J., Roche Medical Electronics, Inc., 1976.
10. Cohn LH, Lamberti J, Lesch M, et al: Intra-aortic balloon counterpulsation and coronary revascularization for left ventricular power failure. *Eur Sur Res* 6:129-136, 1974.
11. Mundth Ed: Assisted circulation, in: Sabiston DC Jr, Spencer FC, eds *Gibbon's Surgery of the Chest*, ed 3. Philadelphia, WB Saunders, 1976, pp 1394-1414.
12. Mundth ED, Buckley MJ, Daggett WM, et al: Surgical intervention for preinfarction angina. *Adv Cardiol* 15:59-69, 1975.

## Editorial Comments

Kenneth B. Desser, M.D.

Sounds emitted by the intra-aortic balloon pump induce a high degree of solemnity among physicians, nurses, paramedical personnel and laymen. This is a serious setting and it deserves the attention it receives. During a single 24 hour period three balloon pumps were observed to be operative simultaneously at the Good Samaritan Hospital Coronary Care Unit. The first device was utilized to treat a patient with cardiogenic shock secondary to acute myocardial infarction, the second was put in a patient with severe unstable angina pectoris refractory to medication and the third was inserted to stabilize a subject with an acquired ventricular septal defect. In all three situations the goals were compatible, namely 1) augmentation of coronary blood flow during diastole 2) decrease of afterload during systole and 3) enhancement of left ventricular ejection fraction. Striking reductions in the degree of S-T segment elevation or depression, sustained chest pain and ventricular arrhythmias have been noted to occur after implantation of the intra-aortic balloon and attest to its therapeutic efficacy. A recent innovation has been the introduction of a percutaneous method for balloon insertion and the early results are encouraging. Intra-aortic balloon pumping and treatment with pharmacologic agents such as nitrites, propranolol, dopamine, dobutamine and sodium nitroprusside are not mutually exclusive but are complementary. Since pump failure is currently the most common cause of death in hospitalized patients with acute myocardial infarction it is mandatory that this mechanical intervention be considered in affected subjects. The left ventricle with 20 to 40% necrosis deserves a chance to survive and the balloon pump represents a major advance for its salvage.

*Supported in part by the Biomedical Research Memorial Fund, Inc.*



## Screening People of Jewish Origin for Tay-Sachs Disease Carriers

Frederick Hecht, M.D.

Editor:  
Frederick Hecht, M.D.

In 1881 Warren Tay, a British ophthalmologist, observed macular degeneration in a child with progressive neurologic disease.<sup>1</sup> Six years later in 1887 Bernard Sachs described<sup>2</sup> the cortical pathology in this disease now known as Tay-Sachs disease or GM<sub>2</sub> gangliosidosis, type I.

In 1969 the biochemical basis for Tay-Sachs disease was found.<sup>3</sup> The enzyme hexosaminidase A (hex A), it was learned, is totally deficient in activity in affected children. Asymptomatic carriers of the Tay-Sachs gene were observed to have half-normal levels of serum hex A.

From: The Genetics Center and Jewish Genetic Disease Center of Southwest Biomedical Research Institute, Tempe, Arizona. Reprint requests to Dr. Hecht, The Genetics Center and Jewish Genetics Disease Center of Southwest Biomedical Research Institute, 123 E. University Drive, Tempe, AZ 85281.

In 1970-71 it was reported<sup>4-6</sup> that Tay-Sachs disease could be prenatally diagnosed. In the same year the first screening program for Tay-Sachs disease carriers was initiated in Baltimore.

### **The Nature of Tay-Sachs Disease**

The child with Tay-Sachs disease appears normal at birth and in the first months of life. Then development gradually slows before a year of age. Vision decreases, and a cherry red spot in the retina appears. Seizures may occur. The disease is relentlessly progressive and death occurs by age five. Tay-Sachs disease is uniformly lethal. No effective treatment is known.

### **Basis for Screening**

Tay-Sachs disease occurs mainly in a well defined population. The disease is 100 times more common in Jewish infants than in non-Jews.<sup>7</sup> Jews with the Tay-Sachs gene are primarily those of central and eastern Jewish ancestry (Ashkenazi Jews), who make up the vast majority of American Jews.

Detection of the carrier state for Tay-Sachs disease is simple, accurate and inexpensive. Serum hex A is measured. This can be done with automated techniques.<sup>8</sup>

The occurrence of Tay-Sachs disease in a well defined population and the ease of carrier detection provide a basis for screening. Once a husband and wife have been identified as Tay-Sachs carriers, their pregnancies can be monitored for the disease. On the average, one-quarter (25%) of their pregnancies will have Tay-Sachs disease. Perhaps more importantly, three-quarters (75%) of their pregnancies will result in normal children.

### **Genetics of Tay-Sachs Disease**

Tay-Sachs disease is inherited in an autosomal recessive pattern. A family history is usually *not* present for Tay-Sachs disease. Both parents are carriers and have no symptoms. Each parent, however, carries the Tay-Sachs gene in heterozygous state. They have one Tay-Sachs gene and one normal paired gene. Their chance of transmitting the Tay-Sachs gene is thus one half (50%). It is analogous to flipping a coin: heads you have the Tay-Sachs gene, tails you have the normal gene.

Since each parent has one-half chance of transmitting the gene for Tay-Sachs and transmission by different people is equally likely, the chance for both parents to transmit the gene is one half times one half, that is, a quarter (25%).

### **Population genetics**

Tay-Sachs disease occurs in about one in every 3,600 Jewish children.<sup>7</sup> By contrast, Tay-Sachs only occurs in about one in every 360,000 non-Jewish children.

With Tay-Sachs (and other autosomal recessive diseases) the proportions of non-carriers to carriers to affected persons is predicted by the expression  $p^2 + 2pq + q^2$ . The term  $q^2$  is the frequency of affected persons. In the case of Tay-Sachs disease, this is 1/3,600. The frequency of the gene ( $q$ ) will be the square root of 1/3,600. This is 1/60. Conversely, the frequency of the

normal gene ( $p$ ) is 1- $q$ , which for Tay-Sachs is 1-1/60 or 59/60. The middle term  $2pq$  in the expression is the carrier frequency. For Tay-Sachs, this is  $2(59/60)(1/60)$  or about 1/30. One in about every 30 Jewish persons will be a Tay-Sachs carrier.

The reason why Tay-Sachs is largely concentrated in Jews is thought to be "founder effect." The gene may have arisen in a Jew whose progeny today are numerous. The "founder" probably lived prior to the year 1600 in what is today Lithuania (USSR). Other theories on the origin of the Tay Sachs gene abound.

### **Screening in the United States**

Between 1971 and 1975 more than 100,000 Jewish people were screened for the Tay-Sachs gene in the United States.<sup>9</sup> The carrier frequency was close to the expected 1 in 30. In fact, it was 1 in 27.3 persons.

In the seventies screening was largely of married couples in the childbearing age range. Now screening is being done with people of all ages, since anyone with the gene may transmit it. Thus, older persons as well as children are now being tested.

### **Screening in Britain and Other Countries**

There are an estimated 400,000 Jews in Britain. Screening for Tay-Sachs was initiated in 1972.<sup>10</sup> After two years of work, only 341 people had been tested. Less than one in every 1,000 Jews in Britain was screened. Tay-Sachs screening has been a clearcut failure in Dr. Tay's homeland.

One possible explanation for the failure in Britain is lack of cohesion. British Jews are indistinct as a group. Further, as with many Britons, they are not as health-oriented as are people in the United States.<sup>11</sup>

In other countries outside North America, Tay-Sachs screening has also been unsuccessful. Among the countries with poor responses to screening is Israel, where most of the several million people are Jews.

### **Screening in Arizona**

In 1975 Arizona initiated a screening program for Tay-Sachs. The program is based in Phoenix. A total of 1,278 persons were tested and 42 carriers found initially. Subsequent screenings have been done and more carriers have been found.\* So far, no methodical screening of people outside of the Phoenix-metro area has been done.

As with all states in the sun belt, Arizona has a rising population. Among the new citizens of Arizona are Jews; many of whom have not been screened for Tay-Sachs. This can be done in Tucson through the University of Arizona Health Sciences Center or in the Phoenix-metro area through The Genetics Center in Tempe.

### **The Physician's Responsibility**

The physician first needs to learn whether the patient is of Jewish ancestry. Then he or she should discuss Tay-

*\*Through 1977 a total of 1,869 persons were screened and 69 carriers detected for a carrier frequency of 1/27 persons. In 1980 three screening programs were just done. The final results are not yet known.*



Sachs disease with the patient (or relative) and offer screening. This is the only effective strategy today. Referral for screening can be made to the closest center (see above). The Arizona Tay-Sachs Committee (Mrs. Phyllis Anatole, telephone 894-1104) provides information and assists in referral.

### Summary

Tay-Sachs disease is a fatal degenerative neurologic disease. It is an autosomal recessive disorder and is concentrated in Jewish people. About one in every 30 Jewish persons is a carrier for Tay-Sachs disease. Carrier detection is done with assay of the enzyme hexosaminidase A. There is no effective treatment for Tay-Sachs disease. Prevention is feasible now through carrier detection, genetic counseling and prenatal diagnosis.

### References

1. Tay W. Symmetrical changes in the region of the yellow spot in each eye of an infant. *Trans Sphthal Soc UK* 1:55-57, 1881.
  2. Sachs B: On arrested cerebral development with special reference to its cortical pathology. *J Nerv Ment Dis* 14:541, 1887.
  3. Okada S, O'Brien JS: Tay-Sachs disease: Generalized absence of a beta-D-N-acetylhexosaminidase component. *Science* 165:698-700, 1969.
  4. Schneck L, Friedland J, Valenti C., Adachi M, Amsterdam D, Volk BW: Prenatal diagnosis of Tay-Sachs disease. *Lancet* 1:582-583, 1970.
  5. O'Brien JS, Okada S, Fillerup DL, Veat ML, Adornato B, Brenner PH, Leroy JG: Tay-Sachs disease: Prenatal diagnosis. *Sciences* 172:61-64, 1971.
  6. Navon R, Padeh B: Prenatal diagnosis of Tay-Sachs genotypes. *Br Med J* 4:17-20, 1971.
  7. Aronson SM, Volk BW: Genetic and demographic considerations concerning Tay-Sachs disease. In: *Cerebral Spingolipidoses* Aronson SM, Volk BW (eds), Academic Press, New York, 1962, pp 375-394.
  8. Lowden JA, Skomorowski MA, Henderson F, Kaback MM: The automated assay of hexosmainidases in serum. *Clin Chem* 19:1345-1349, 1973.
  9. Kaback MM, Nathan TJ, Greenwald S: Tay-Sachs disease: Heterozygote screening and prenatal diagnosis -U.S. experience and world perspective. In: *Tay-Sachs Disease: Screening and Prevention*. Kaback MM (ed.), Alan R. Liss Inc, New York, 1977, pp 13-36.
  10. Evans PR: Tay-Sachs screening in Britain. In: *Tay-Sachs Disease: Screening and Prevention*. Kaback MM (ed). Alan R. Liss, Inc., New York 1977, pp 55-59.
- An additional book, which is invaluable and concerns all Jewish genetic diseases, is: Goodman RM: Genetic Disorder Among the Jewish People. The Johns Hopkins University Press, Baltimore 1979, pp. 1-493.



*Neurology*

## Trans-sphenoidal Hypophysectomy For Intractable Cancer Pain

Volker K. H. Sonntag, M.D.

Editors:

James Frey, M.D.

Barry Hendin, M.D.

Lawrence Stern, M.D.

The ability to perform a trans-sphenoidal approach to the pituitary gland with the microscope has rejuvenated this procedure in the neurosurgical armamentarium to treat adenomas of the pituitary gland as well as carry out hypophysectomy for treatment of disseminated carcinoma of the breast and prostate gland and for pain relief in metastatic cancer. The trans-sphenoidal approach to the pituitary has recently been reviewed by Brown.<sup>1</sup> As he points out, the operation was first described by Schloffer in 1907 and popularized by Cushing in the early 1900's. However because of increasing morbidity and mortality, he abandoned this approach. The trans-sphenoidal approach was renewed by Guiot<sup>2</sup> of Paris and more recently made popular by Hardy.<sup>3</sup> The reason for renewed interest in this operation is the use of the microscope as well as the use of fluoroscopy during the operation. Technical aspects of this operation are well described by Brown<sup>1</sup> and Hardy.<sup>3</sup>

Hypophysectomy for palliation of malignant disease

From: Neurological Surgery, 550 West Thomas Road, 237D, Phoenix, AZ 85013.

Table 1

| When Dx by Mastectomy                                   | 1976                              | 1975                                     | 1968                           | 1960                                     | 1964                |
|---------------------------------------------------------|-----------------------------------|------------------------------------------|--------------------------------|------------------------------------------|---------------------|
| Endocrine manipulation prior to Hypophysectomy          | Oophorectomy 1/1977               | Oophorectomy 2/1976                      | None                           | Oophorectomy 1964                        | Oophorectomy 1969   |
| Result of Endocrine manipulation                        | No pain; Regression of metastases | Decreased pain; Regression of metastases | ——<br>Resoluiton of metastases | Decreased pain; Regression of metastases | No pain;            |
| Metastatic sites prior prior to Hypophysectomy          | Bone                              | Bone                                     | Bone; Neck Nodes               | Bone; Chest Wall                         | Bone                |
| Pain prior to Hypophysectomy                            | Severe                            | Severe                                   | Severe                         | Severe                                   | Severe              |
| Date of Hypophysectomy                                  | 10/77                             | 1/78                                     | 1/78                           | 1/78                                     | 3/78                |
| Complete pain relief                                    | 10 months                         | 11 months                                | 6 months                       | 4 months (until death 5/78)              | 25 months           |
| Mild-moderate pain relief                               | 5 months till death 1/79          | 2 months till death 1/79                 | 15 months till death 12/79     | ——                                       | 1 month still alive |
| Objective regression of metastases after Hypophysectomy | No                                | Yes                                      | Yes                            | No                                       | Yes                 |

was first reported in 1952.<sup>4</sup> Since then several others have documented the value of hypophysectomy as a worthwhile palliative operation in disseminated cancer of the breast and prostate gland. The objective remission of lack of progression of metastatic cancer of either breast or prostate has been reported to be between 30 and 85%.<sup>5-9</sup> Those individuals who had successful endocrine manipulation such as oophrectomy, orchiectomy and those that have positive estrogen receptors tend to have a higher objective remission.<sup>5,9</sup> However, more important, in the patients undergoing hypophysectomy it was noted that they had a dramatic relief of pain associated with metastatic breast or prostate cancer, with relief of pain being up to 91%.<sup>5,6,10</sup> Also in 1977 Tindall et al<sup>11</sup> reported pain relief in metastatic cancer other than breast and prostate gland following trans-sphenoidal hypophysectomy.

#### Data

Table 1 displays the effect of hypophysectomy carried out recently in five patients with disseminated breast carcinoma and severe debilitating pain. Four of the five patients had successful endocrine manipulation prior to hypophysectomy. Determination of estrogen-binding receptor protein was not available. Following the hypophysectomy, all patients received significant and lasting relief of pain within 24 to 48 hours of surgery. The analgesic requirements from high doses of merperidine or morphine derivatives changed initially to no analgesia for at least six months and then later to minor pain medicines such as codeine. One patient is still alive 25 months after her hypophysectomy with good

relief of pain. The preoperative and postoperative course of these five patients is outlined in table 1. All patients tolerated surgery well. One patients (case number four) developed postoperative pneumonia. All patients developed partial diabetes insipidus following surgery however this was easily controlled initially with aqueous pitressin administered parenterally or later on with intranasal pitressin spray. There were no other complications from surgery.

#### Discussion

The microscopic trans-sphenoidal approach to the pituitary has made it feasible to carry out a hypophysectomy with minimal complications. Other methods for accomplishing hypophysectomy such as stereotaxic cryohypophysectomy,<sup>8</sup> stereotaxic radiofrequency coagulation,<sup>11</sup> absolute alcohol injection in the sella turica<sup>13,14</sup> as well as irradiation of the sella turica or trans-sphenoidal stereotaxic insertion of yttrium<sup>5</sup> have also been employed. The latter two are ineffective because of the relative persistence of the gland to this mode of therapy. It is generally thought that the procedures that are effective and relatively safe include sterotaxic cryohypophysectomy, stereotaxic radiofrequency and open trans-sphenoidal microsurgical removal of the gland.<sup>5,11</sup> In experienced hands, any one of these three procedures yields good results in properly chosen patients. Of the three techniques recommended for performing hypophysectomy, it is the author's opinion that the open trans-sphenoidal route is the only one that will consistently accomplish a complete removal of the gland



and this feature represents the principle advantage of the approach over the stereotaxic method. While some surgeons believe that a complete removal of the pituitary gland is unnecessary for remission,<sup>10</sup> others share a different opinion.<sup>15</sup>

Prediction for a successful hypophysectomy are previous successful endocrine manipulation and estrogen-binding protein receptor. Approximately 75% to 85% of women who achieved an objective remission from oophorectomy can expect to obtain a similar response following hypophysectomy.<sup>8,9</sup> Determination of estrogen-binding receptor protein in the primary breast cancer or its metastases correlates with a positive response following endocrine ablation in a high percentage of cases.<sup>16</sup>

The striking relief of pain following hypophysectomy often within a few hours of the procedures is intriguing from the standpoint of possible mechanisms responsible for relief. Explanations which could be offered include structural or regressive changes in the tumor, placebo effect, nonspecific steroid effect, and removal of one or more pituitary trophic hormones and/or related substance. Temporal aspects of relief argue against the benefit resulting from a placebo effect, steroids and regressive changes in the tumor. Also, many patients achieve relief despite failure to obtain objective remission.

Of the pituitary hormones whose absence may be implicated in the pain relief mechanism, prolactin and growth hormone have been closely scrutinized. Certain facts raise doubt about the roles of these hormones in cancer pain reduction, however; 1) Stalk sectioning in patients with breast cancer is normally associated with significantly elevated postoperative blood prolactin levels,<sup>17</sup> and yet many patients undergoing such surgery achieve pain relief. 2) Levodopa administration results in release of growth hormone, and yet a significant number of breast cancer patients have obtained pain relief with Levodopa administration, such that Levodopa has even been used as a screening test to identify possible responders to hypophysectomy.<sup>18</sup>

Recently peptides (enkephalin, endorphine) with significant pain relieving properties have been discovered in the brain and pituitary gland of several mammals.<sup>19</sup> One of these peptides (B-endorphine) has shown to possess, on a molar basis, 18 to 33 times more potency than morphine.<sup>19</sup> The mechanisms of action and circumstances of potential release of these peptides, particularly endorphine, either into brain substance, CSF and/or ventricular fluid, or into the peripheral circulation, remain to be determined. However, it is interesting to speculate that possibly a loss of shortloop feedback control due to pituitary ablation in humans is followed by release of one or more peptides that act in some as yet unknown manner to alleviate pain, or that the hypophysectomy causes some sort of stimulating effect upon the hypothalamus to secrete the endorphine. Since the structure of these peptides is known it will

probably be possible ultimately to develop a radioimmunoassay, thus allowing pre- and post-operative blood and/or CSF assay in the hypophysectomized patient using those assays as a chemical marker as to effectiveness of the operation.

Trans-sphenoidal microsurgical hypophysectomy can be performed upon elderly patients without significant risk provided they are in reasonably good health and are not extensively riddled with metastatic disease. While an objective remission rate is not always achieved in the patients with metastatic breast or prostate cancer, it is the dramatic pain relief that immediately follows the procedure in the great majority of patients that is the most significant benefit, not only in the endocrine metastatic tumor but also other metastatic neoplasms. For this reason alone, it appears that the trans-sphenoidal hypophysectomy is an appropriate procedure of choice in patients with severe pain associated with their metastatic neoplasms.

#### References

1. Brown L: Transsphenoidal approach to the Pituitary. *Arizona Medicine* 36:756-759, 1979.
2. Guiot S: Adenomes Hypophysaires. Paris, Masson Pub., 1958, p. 165.
3. Hardy J: Transsphenoidal hypophysectomy. *J Neurosurgery* 34:582-594, 1971.
4. Shimkin MB, Boldrey EB, Kelly KH, et al: Effect of surgical hypophysectomy in man with malignant melanoma. *J Clin Endocrinol* 12:439-453, 1952.
5. Tindall TG, Payne NS, Nixon DW: Transsphenoidal hypophysectomy for disseminated carcinoma of the prostate gland. *J Neurosurgery* 50: 275-282, 1979.
6. Pearson OH, Ray BS: Hypophysectomy in the treatment of metastatic cancer. *Am J Surg* 99:544-552, 1960.
7. Kennedy BJ, French L: Hypophysectomy in advanced breast cancer. *Am J Surg* 110:411-415, 1965.
8. Conway LW, Collins WF: Results of transsphenoidal cryohypophysectomy for carcinoma of the breast. *N Engl J Med*. 281:1-7, 1969.
9. Ray BS: Hypophysectomy as palliative treatment. *JAMA* 200:974-975, 1967.
10. LaRossa JT, Strong SM, Malby JC: Endocrinologically incomplete transsphenoidal hypophysectomy with relief of bone pain in breast cancer. *N Engl J Med* 298:1332-1335, 1978.
11. Tindall GT, Nixon DW, Christy JH, Neill JD: Pain relief in metastatic cancer other than breast and prostate gland following transsphenoidal hypophysectomy. *J Neurosurgery* 47:659-662, 1977.
12. Zervas NT: Stereotaxic radiofrequency surgery of the normal and the abnormal pituitary gland. *N Engl J Med* 280:429-437, 1969.
13. Corssen G, Holcomb MC, Moustapha I, et al: Alcohol-induced adenolysis of the pituitary gland: A new approach to control of intractable cancer pain. *Anesthesia and Analgesia*. . . *Current Researches* 56:414-421, 1977.
14. Moricca G: Chemical hypophysectomy for cancer pain. In: *Advances in Neurology, Volume 4*, Pain Raven Press, New York, 1974 pp 707-714.
15. Estelstyn G, Gleadhill C., Ryan A: Total hypophysectomy for advanced breast cancer. *Clin Radiol* 19:420-432, 1968.
16. Leung BS, Fletcher WF, Krippaehne WW: Estrogen receptor: A valid test for section of breast cancer patients for endocrine ablation. *Surg Forum* 24:125-127, 1973.
17. Turkington RW, Underwood LE, Van Wyck JJ: Elevated serum prolactin levels after pituitary stalk section in man. *N Engl J Med* 285:707-710, 1971.
18. Minton JP, Dickey RP: Levodopa test to predict response of carcinoma of the breast to surgical ablation of endocrine glands. *Surg Gynecol Obstet* 136:971-974, 1973.
19. Loh HH, Treng LF, Wei E, et al: B-endorphine is a potent analgesic agent. *Proc Natl Acad Sci USA* 73:2895-2899, 1976.



## Management of Primary Brain Tumors in Adults

Jack H. Dunn, M.D.  
Arden F. Reynolds, M.D.

Editors:  
David S. Alberts, M.D.  
Ellen M. Chase, B.S.

Due to the widespread availability of CT scanning of the brain, brain tumors are now diagnosed more quickly and accurately. Cerebral angiography demonstrates the position of the tumor mass effect and the vascularity of the tumor in relation to the arterial and venous structures in the brain. This is essential in planning any surgical approach or biopsy of the tumor. With third-generation CT scanning and localization, radioisotope brain scans, ventriculograms and PEG's are no longer necessary for the workup of most brain tumors.<sup>7</sup> Astrocytomas of the grade I or II according to the Kernohan scale have a good prognosis. With conventional surgical excision and localized radiation therapy, the patient can expect a good survival and a possible cure. But the tumors that appear on diagnostic workup to be malignant astrocytomas of a grade III or IV have a more dismal prognosis.<sup>3</sup> The patient can expect a 1-year mean survival time with the best conventional therapy. During this time the patient will not expect any metastasis, since the malignant gliomas rarely spread from the brain. The patient can expect to be pain free. The patient should be able to return to near normal activities.

Once the diagnosis has been made, initial therapy should include anticonvulsants. Phenytoin, 300 to 400 mgs per day, is a standard dose for any tumor near the cerebral cortex. Steroids can be used to decrease the

symptoms of increased intracranial pressure and to ameliorate any symptoms of a focal neurological deficit. Antacids or cimetidine should be given with the steroids to prevent any gastric upset or GI bleeding. The goal of brain tumor therapy is to remove all malignant or potentially malignant cells. With the best possible conventional surgery, 99% of the tumor cells could be removed. With the best conventional radiation therapy, an additional 0.99% of the tumor cells can be killed. This leaves a residual of 0.01% tumor cells. In the typical brain tumor, this means 10 million residual cells. At the average rate of glioma cell growth, this means that the tumor will regrow to approximately 100 grams in size in 26 weeks.<sup>1</sup>

### **Surgery:**

A neurosurgical evaluation should be obtained to see if the patient would benefit from any type of operation. Gross total tumor removal can be performed on superficial tumors. A tumor of the frontal pole, occipital pole, or temporal tip can be removed without any significant neurological deficit. Biopsy can be done on almost any tumor. Even tumors deep within the basal ganglia can be biopsied by stereotaxic control or using the CT scanner.<sup>4</sup> Brain stem tumors of the posterior fossa may require exploration if there is a question of an extra-axial tumor. A ventricular shunt may benefit patients with posterior fossa tumors, especially brain-stem gliomas, which cause hydrocephalus.<sup>5</sup>

The use of steroids in the perioperative period has markedly decreased the morbidity and mortality of brain tumor surgery. The CT scan accurately demonstrates the location of the tumor relative to other intracranial structures. This makes accurate planning of the surgical procedure much easier. Mannitol is used as an osmotic diuretic which decreases brain fluid, decreases the intracranial pressure, and shrinks the brain. Lasix is another diuretic which will decrease the brain water content and give more room for the intracranial operation. Modern neuroanesthetic techniques which include careful monitoring and blood pressure control enable the surgeon to perform the surgery more safely and smoothly with a decrease in the loss of blood. The operating microscope makes possible the approach to the suprasellar region, to the posterior fossa, and to intraventricular tumors safer and more effective. If necessary, intracranial pressure monitoring can be performed intraoperatively or postoperatively in order to treat previously unexpected rises in intracranial pressure with increased dosages of steroids and/or diuretics. The availability of a neuropathologist who can read frozen sections makes it possible to ensure that the tumor margins have been removed before the operation is completed.

### **Radiation Therapy:**

Whole-brain radiation therapy to a dose of 6,000 rads has been demonstrated in conjunction with surgery to double the median survival time of patients with grade III and IV astrocytomas from 17 to 38 weeks.<sup>6</sup> Patients



who have not been operated on may require steroids during their course of radiation therapy. The radiation therapy should be performed with megavoltage equipment and given over a six week period for optimum results. The patient will usually suffer a loss of hair. Most patients after the first week experience some headache and depression of mental status. Nausea and fatigue also appear during the latter part of the six-week course of radiation therapy. In spite of the benefits of whole-brain radiation therapy, it does have several possible complications. The patients who survive six months have demonstrated brain atrophy by CT scan. This should not be confused with hydrocephalus. This brain atrophy is often correlated with a decrease in the patients' functional level of performing daily activities. Brain edema not directly adjacent to the tumor can be radiation necrosis. Radiation necrosis usually does not occur until six months after completion of radiation therapy, but it may appear as early as three months after completion of therapy.

### **Chemotherapy**

Because of the blood-brain barrier, chemotherapeutic agents that have been effective for solid tumors in the rest of the body do not penetrate into brain tumors well. There is a breakdown of the blood-brain barrier as demonstrated by the movement of contrast material into brain tumors on CT scan. This breakdown of the blood-brain barrier allows most medications to permeate into some areas of the brain tumor, but they do not reach therapeutic concentrations throughout the entire brain tumor. The nitrosourea compounds have been demonstrated to reach therapeutic concentrations throughout the brain tumor. BCNU, according to the Brain Tumor Study Group, has been found to be the most effective of the nitrosoureas. The recommended dosage of BCNU is 80 mg/m<sup>2</sup> IV for three days, or 240 mg/m<sup>2</sup> IV in a single dose. This same dose is to be repeated every eight weeks. The side effects of this drug include nausea and vomiting at the time of administration. The patient requires weekly monitoring of blood counts because of bone marrow toxicity with this medication, which produces a leukopenia or thrombocytopenia. Pulmonary interstitial fibrosis and renal failure have also been reported with multiple treatments with BCNU. The Brain Tumor Study Group has not demonstrated a significant increase in the median survival rate of patients having chemotherapy in addition to conventional therapy of surgery and radiation therapy, but the Group does claim a higher percentage of survival at eighteen months, as well as a better quality of survival.<sup>6</sup> The best conventional therapy is surgery with a gross removal of the tumor when possible, followed by whole-brain radiation therapy. Some patients and their families would request that the utmost be done to prolong survival. For this group of patients and their families, a discussion of the intensive and demanding medical care required of

chemotherapy and its complications, which can be very debilitating, must be carefully undertaken. If the family still wishes to have chemotherapy performed, BCNU is recommended as the drug of choice. The patient may wish to be referred to one of the centers specializing in brain tumor studies. If the patient volunteers, he can be randomized into one of various protocols for chemotherapy.<sup>8</sup>

### **Tumor Progression:**

After the completion of radiation therapy in patients who have never had surgery, there may be a necrotic cystic center to the tumor which is causing a mass effect without any evidence of tumor growth. There may even be evidence of tumor regression by a decrease in the volume of enhancement on the CT scan. Some of these patients will benefit by drainage of a cystic cavity or craniotomy and removal of necrotic tumor. A few patients with a survival of over a year, who have primarily symptoms of increased pressure without a significant focal deficit, may be considered for reoperation. These patients should be well aware of the fact that the craniotomy and postoperative recovery will be a significant portion of their expected survival time. Progressively increasing the steroid doses in patients with progression of tumor can decrease the symptoms of increased intracranial pressure. Sometimes, increasing the steroid doses will also decrease the patients' symptoms of local tumor invasion or compression. All of these patients will develop the Cushingoid effects of high-dose steroids. Increasing the dose of steroids will give a patient with a glioma an option for control of his life. As his headache or symptoms progress, he is able to increase his medication in consultation with his physician. The patient and the family can also be aware that by stopping the steroids at any time, there would be a rapid deterioration with a lapse into coma and probable death soon after cessation of the steroids.

### **Additional Therapies Under Study:**

Proton beam radiation gives a sharply collimated dose of radiation into a specific volume of brain. A high dose of radiation can be delivered in one treatment. However, this is available in only two institutions in the U. S. Therefore, proton beam radiation is reserved for treatment of benign tumors at this time. Megavoltage radiation therapy to a more restricted field instead of whole-brain therapy is now possible with accurate CT scans. This gives a lower incidence of complications from radiation therapy. One method of enhancing radiation therapy is to use a hypoxic cell sensitizer. The nonproliferating cells in the center of a tumor, which probably rest in a hypoxic state, are relatively insensitive to radiation. The actively proliferating population of tumor cells is relatively more sensitive to radiation therapy. Metronidazole (Flagyl)<sup>®</sup>, a 5-nitroimidazole, has been found to sensitize these hypoxic tumor cells for radiation in gliomas.<sup>1</sup> Misonidazole, a 2-nitroimidazole, has been found to be more effective than metronidazole

in experimental animal tumors and is now being used on human subjects in the Brain Tumor Study Group. Superfractionation (giving two daily doses of radiation therapy instead of one) theoretically exposes more different cells to radiation therapy during different cell cycles of growth, reproduction, and levels of oxygenation. This method of ten treatments of radiation therapy per week is also under study at this time.

Some centers, including the University of Arizona Cancer Center, are growing the patients' brain tumors in tissue culture and then trying various chemotherapeutic agents on the tumors in *in vitro* sensitivity tests in order to find the best drug for each patient.

Multiple immunologic changes are seen in brain tumor patients.<sup>2</sup> Tumor-specific antigens have been identified in cerebrospinal fluid and in serum. Unfortunately, both cellular and humoral general immune response in glioma patients is low. This indicates anergy, or deterioration, of the patients' entire immunological protective system. So far, all attempts to effectively bolster this self-protective immunological system have failed.

#### Summary:

With the best conventional techniques of surgery and radiation, the patient can expect only a delay in the inevitable progression of the brain tumor. Using CT scans, carefully planned surgery, focal radiation therapy, and closely monitored steroid dosages, the patient can be made more independent and comfortable with a doubling of expected survival time compared to the past. With present-day CT scanning equipment, the physician, and the patient and his family if they wish, can carefully follow the progress of the tumor. The family can see the response to surgery, radiation, and steroid therapy.

At the present time, our goal is to continue to improve the survival time of the patient and his level of function during the survival time. Until we have a method of either destroying or inhibiting the growth of the brain tumor cells, we must treat each patient with compassion, offering him an array of options, none of which includes a cure.

#### References

1. Lieberman AJ, Ransohoff J: Treatment of primary brain tumors. *Med. Clin. of N. Amer.* 63:835-848, 1979.
2. Mahaley MS, et al: Immunobiology of primary intracranial tumors. *J. Neurosurg* 46:467-76, 1977.
3. Neuwalt EA: Treatment of central nervous system neoplasms. In: *The Treatment of Neurological Diseases*. R. Rosenberg (ed), Spectrum, New York, 1979.
4. Pecher J: Stereotaxic approach to diagnosis and treatment of cerebral tumors. *P. Fabre*. Paris, 1979.
5. Ransohoff J, Lieberman AJ: Surgical therapy of primary brain tumors. *Clin Neurosurg*. 15:403-411, 1978.
6. Walker M.D., et al: Evaluation of BCNU and/or radiotherapy in the treatment of anaplastic gliomas. *J Neurosurg* 49:333-43, 1978.
7. Weiss HD: Neoplasms. In: *Manual of Neurological Therapeutics*. M.A. Samuels, (ed.) Little, Brown and Co., Boston, 1978.
8. Wilson CB: Current concepts in cancer: Brain Tumors. *New Engl J Med*, 300:1469-71, 1979.



## Psychiatric Disorders

### A Two-Day Sexuality Workshop for OB-GYN Residents

Rosalyn Meadow, M.A.  
Lillie Weiss, Ph.D.  
Edward Sattenspiel, M.D., FACOG

Editor:  
Thomas E. Bittker, M.D.

A detailed description of a two-day sexuality workshop for OB-GYN residents is outlined. The first day is devoted primarily to making the participants comfortable with their own sexuality. The second day focuses on current sex therapy techniques and the role of the gynecologist in initiating and facilitating sexual counseling. The practical nature of this workshop format lends itself to a variety of applications.

The need for physicians to provide sexual counseling and education for their patients is well documented.<sup>1-9</sup> Because obstetrician-gynecologists are primary care physicians for women, it is important that they have adequate knowledge and the skills to treat female sexual problems. However, the training that they received from a human sexuality course in medical school is not sufficient preparation for sexual counseling. The physician must also possess a degree of comfort with sexual issues and be able to communicate this to his patients.<sup>2</sup> Unfortunately, most medical school curricula do not prepare the practicing physician to comfortably and effectively interact with patients presenting sexual problems.<sup>9</sup>

From: Center for a Brief Psychotherapy, 118 E. Missouri Ave, Ste A-2, Phoenix, Arizona 85014 (Ms. Meadow and Dr. Weiss) and 333 West Thomas Road, Phoenix, AZ 85013 (Dr. Sattenspiel). Reprint requests to Good Samaritan Hospital Mental Health Services, 1033 E. McDowell Road, Phoenix, AZ 85006.



A recent survey by the authors reveals that the majority of female respondents would not discuss sexual concerns with their obstetrician-gynecologists, and that this was usually directly related to specific interpersonal behavior exhibited by the physician which inhibited discussion. This suggests the need for physicians and medical educators to restructure the training of gynecologists to include education in sexual counseling.

The women's movement and current research in female sexuality have fostered changes in women's self-perceptions and their relationships with men, particularly their doctors. Women have become more assertive and questioning, and want to discuss their sexual concerns with their physicians. Gynecologists want to meet the changing needs of women and desire information and skills that would bring about a mutually satisfactory doctor-patient relationship. It was to this end that this workshop was developed.

Incorporated into the workshop format are processes facilitating learning that are frequently used in the training of professionals in human sexuality. Desensitization to sexual material is accomplished through films, explicit sexual language, and discussion of personal sexual attitudes. Awareness of sexual biases is produced through small group discussions and presentation of conflicting sexual materials. Personal learning is furthered by the incorporation of new information. In addition, leaders model ease of communication and comfort in discussing taboo areas, e.g. masturbation, oral sex, homosexuality, etc. Didactic material and discussion are combined to facilitate learning of new information. Role-play is used to illustrate specific treatment approaches, taking a sex history, and adequate counseling skills.<sup>10</sup> Other sexuality workshops for professionals have used similar formats.<sup>11,12</sup>

The purpose of the workshop is to facilitate a greater understanding of human sexuality and to acquaint the participants with current sex therapy techniques. The first day is devoted primarily to making the participants more comfortable with their own sexuality. The second day focuses on current sex therapy techniques and the role of the gynecologist in initiating and facilitating sexual counseling.

## Method

Typically, the workshop consists of 36 participants, comprised of 18 OB-GYN residents and their spouses. If no spouse or partner is available, additional health personnel attend to ensure an equal number of males and females. Having the spouse present enables the physician to integrate the material on a personal, and thus more meaningful, level. In addition, since the majority of the residents are male, this procedure insures the female point of view.

The faculty, usually four or five people, also represents both sexes. Our faculty members include both practicing obstetrician-gynecologists and psychologists trained in sex education and therapy. Each

discipline contributes to the education of the resident: the OB-GYN, his medical knowledge and experience, and the psychologist, his counseling skills.

Facilities for the workshop include one large room and at least two small ones for discussion groups. A comfortable atmosphere is created by soft lighting, carpeting, and padded armchairs. Lunch is provided for the participants to maintain group cohesiveness.

## First Day

**Introduction.** The introductory remarks clarify the objective of the workshop. We explain that the day will be devoted primarily to making the participants more comfortable with their own sexuality to enhance effectiveness in the doctor-patient relationship. The second day focuses on current sex therapy techniques and the role of the gynecologist in initiating and facilitating sexual counseling.\* It is important that the purpose of the first day's activities be explained in detail, and referred to several times during the day to decrease resistance. We have found that participants are reluctant to explore their own sexual attitudes if they do not feel that this will benefit their patients. The faculty should be aware that when they ask physicians to discuss their sexual attitudes and/or behaviors with peers, anxiety will be generated and will be observed as resistance. Prefacing the workshop activities with how it will benefit the patient will reduce anxiety and consequently decrease resistance.

Following the introduction, the group is broken into four pre-arranged subgroups with an approximately equal number of male and female participants which remain stable for the remainder of the workshop. This adds cohesiveness and increases trust levels. Spouses and close friends are assigned to different groups. Faculty members rotate among the groups, allowing the participants to experience the unique contributions of each one. Following group introductions, dyads are formed to talk about any fears or concerns the participants may have about attending a workshop on sexuality with their spouses and colleagues. The dyads give each participant the opportunity to explore and share his most immediate concerns which may prevent him from fully utilizing the workshop. After initial discussion in the dyads, feelings are shared within the subgroup. This serves to "break the ice," reduce anxiety, and promote group cohesiveness. The facilitator encourages sharing in a permission-giving, non-threatening, supportive way.

**Cultural Conditioning of Sexual Attitudes.** After this initial sharing of feelings, the large group is assembled, and a brief lecture on cultural conditioning of sexual attitudes is presented. The participants are asked to prepare two sheets of paper: one headed "Men Are" and the other, "Women Are." The facilitator asks them to be conscious of attitudes, stereotypes, and myths with regard to the sexual behavior of men and women and to write down words, phrases, or statements describing

\*The program and description of participants' manual appears in the appendix.



these in the appropriate category. These written responses make the members conscious of their specific conditioning and the effect it has had on their sexual feelings and behavior. The responses are written on a blackboard, and the implications of these stereotypes are discussed.

**Films.** Following a brief coffee break, a series of films is shown to desensitize participants to sensitive materials and to promote discussion of sexual behaviors. To reduce anxiety levels, a humorous film ("Love Toad")<sup>13</sup> is the first film that is shown. This is followed by a hard-core pornographic film which illustrates the cultural attitudes and stereotypes previously discussed. The last film is generally aesthetically pleasing and depicts a caring relationship (e.g. "Sunbrushed," "Ripple in Time").<sup>14,15</sup>

Participants reconvene in the small groups to process their feelings about the films and the effects of cultural conditioning upon their own sexual attitudes and behaviors.

**Sexual Language.** After lunch, the participants are divided into male and female groups, facilitated by same-sexed leaders. Printed on a blackboard are names of specific body parts (penis, scrotum, clitoris, vagina, breasts) and specific behaviors (intercourse, oral sex, manual stimulation). Group members are asked to write slang or common words for these body parts and behaviors. We then compare the male and female responses. This is followed by a brief discussion on the role of sexual language in the doctor-patient relationship. Specific suggestions for facilitating comfortable interactions are provided.

**Masturbation.** Masturbation is still a taboo subject for many people, and many myths pertaining to the practice are prevalent. A brief lecture on masturbation is provided, and participants are encouraged to ask questions and become more comfortable with discussing the subject. This is followed by a film depicting a woman masturbating.<sup>16</sup> This particular film also serves as a prelude to the discussion of sex therapy modalities, specifically treatment of preorgasmic women. Participants then meet in small groups to discuss their reactions to the film and feelings about masturbation.

**Current Sexual Practices and Trends.** Following a coffee break, the faculty, acting as a panel, briefly discusses the following: simultaneous orgasm, oral sex, the use of vibrators, adolescent sexuality, orgasm during intercourse, cohabitation, oral sex/anal stimulation, homosexuality among middle-aged women, mechanical sex, sexually assertive women, middle-aged women and young male lovers, clitoral stimulation, the sexual revolution, multiple orgasms and randomly orgasmic women. Questions and group discussion are encouraged.

**Specific Case Histories.** The last segment of the first day's activities is a discussion of specific case histories taken from Stenchever's *Human Sexual Behavior*.<sup>17</sup> These brief histories are representative of common sexual

## Appendix A Program

### Day 1

|             |                                              |
|-------------|----------------------------------------------|
| 8:45-9:00   | Registration                                 |
| 9:00-9:50   | General Introduction: Outline and Objectives |
| 10:00-10:30 | Cultural Conditioning of Sexual Attitudes    |
| 10:30-10:40 | Coffee Break                                 |
| 10:40-11:15 | Films                                        |
| 11:15-12:00 | Small Group Discussions                      |
| 12:00-1:00  | Lunch                                        |
| 1:00-1:30   | Sexual Language                              |
| 1:30-2:30   | Masturbation: Film and Discussion            |
| 2:30-2:45   | Coffee Break                                 |
| 2:45-3:15   | Current Sexual Practices and Trends          |
| 3:15-4:00   | Specific Case Histories                      |

### Day 2

|             |                                                   |
|-------------|---------------------------------------------------|
| 9:00-10:00  | "Getting Into Your Patients' Shoes"               |
| 10:00-10:10 | Coffee Break                                      |
| 10:15-12:00 | The Role of the Gynecologist in Sexual Counseling |
| 12:00-1:00  | Lunch                                             |
| 1:00-2:00   | Overview of PLISSIT Model of Sex Therapy          |
| 2:00-2:10   | Coffee Break                                      |
| 2:10-3:45   | Specific Treatment Approaches                     |
| 3:45-4:00   | Concluding Remarks                                |

problems posed by patients. Physicians read the brief history and discuss alternative approaches. This serves as a bridge to the following day's activities which deal with the doctor-patient relationship.

### Second Day

**"Getting Into Your Patients' Shoes."** In order to become more effective and sensitive, the physician is asked to "put himself into his patients' shoes." Before he can even initiate discussion of sexual issues, it is imperative that he have an understanding of women's feelings and attitudes at the time he sees them. To accomplish this, we discuss research we have conducted on women's attitudes and feelings towards the gynecological examination, their physician and discussion of sexual concerns. We have found that 85% of the women surveyed have very negative feelings associated with the gynecological procedure which is separate from the feelings they have towards their doctors. There appear to be some factors inherent in the gynecological procedure that produce anxiety, humiliation and feelings of vulnerability in their physicians which either facilitate sexual counseling or exacerbate the anxiety. In general, when physicians showed concern, empathy and caring for the patient and took the time to explain the procedure, this reduced anxiety and enabled women to feel comfortable to pursue a discussion of sexual problems. On the other hand, when physician appeared to be in a rush, were patronizing and did not treat the patient like an individual, this was more likely to increase the woman's anxiety and discomfort, thus precluding discussion of important personal concerns. It is noteworthy that the majority of the respondents did not



## Appendix B

The manual for workshop participants includes the following material:

- a description of the PLISSIT model of sex therapy
- a brief sex history outline
- definitions of specific sexual dysfunctions
- excerpts from *The Hite Report*
- specific case histories
- a summary of authors' research on women's attitudes towards their gynecologists
- a list of specific recommendations to facilitate sexual counseling
- a bibliography

discuss sexual concerns with their physicians, and that the majority of their recommendations for change fell within the area of the doctor-patient relationship. In addition to reporting the research findings, comments from the respondents surveyed are circulated among the workshop participants to get the feelings firsthand. Specific recommendations are distributed and discussed.

Following this, the participants meet in small groups to further discuss the material presented. The group leader encourages the women to relate their experience and offer suggestions to the physician.

**"Door Openers."** Following a coffee break, the practicing obstetrician-gynecologists lecture on practical procedures for facilitating sexual counseling. They discuss the "door openers" that they have found effective in their experience. Through the medium of role play, the psychology faculty illustrate interviewing methods and taking a sex history. Residents are then divided into two groups, each led by a female faculty member who simulates the role of a patient while residents practice interviewing skills.

**Overview of PLISSIT Model of Sex Therapy.** Following lunch, we present the PLISSIT mode of sex therapy<sup>18</sup> because it can be applied to medical settings where the time factor precludes intensive therapy. In addition, its use is not restricted to those professionals with a thorough background in sexual dysfunction counseling. The PLISSIT model refers to four levels of approach, and each letter or pair of letters designates a suggested method for presenting sexual concerns. These are: Permission, Limited Information, Specific Suggestions, Intensive Therapy. The first three levels can be viewed as brief therapy as contrasted to the fourth level, and most problems can be treated without intensive therapy. The medium of role play is again used to describe the four levels of treatment.

**Specific Treatment Approaches.** After a brief coffee break, specific male and female sexual dysfunctions and their treatment modalities are described by different faculty members. The female sexual dysfunctions include; orgasmic dysfunction, general sexual dysfunction, vaginismus, dyspareunia and sexual aversion. The male sexual dysfunctions include: premature ejaculation and impotency. Films and

materials are provided to illustrate treatment modalities, when appropriate.

**Concluding Remarks.** The last 15 minutes of the workshop are spent answering questions, and participants complete anonymous evaluation forms for critical review of the format of the workshop. These are used to aid in redesigning future workshops.

### Conclusion

A two day intensive sexuality workshop can be a valuable adjunct to an OB-GYN residency program, particularly in view of the fact that the OB-GYN is the primary care physician for women. In addition, the changing role of women necessitates an awareness of the psychology of women and an ability to discuss sexual problems with them.

The workshop can be held at the hospital facility, using trained staff, thereby eliminating the high cost of attending a sexuality conference elsewhere. Such a workshop can be financed by the OB-GYN department with minimal cost. The intensive nature of the workshop enables the residents to acquire knowledge and skills within a very short time frame. The limited time and cost investment makes this workshop format a practical and feasible one for training residents.

The practical nature of the workshop lends itself to incorporation into other areas. This workshop can be part of the residency training programs for family practitioners, internists, and urologists. In addition, it can be used as a continuing education program for practicing physicians in the above specialties.

Post-workshop evaluations by residents and their partners attending the workshop have been positive, and all the participants stated that they would recommend it to incoming residents. For many residents, this was their only opportunity to learn office management procedures for the treatment of sexual dysfunction and to practice counseling skills.

### References

1. Lief HI: Sex education of medical students and doctors. *Pacif Med Surg* 73:52-58, 1965.
2. Leif HI: Preparing the physician to become a sex counselor and educator. *Pediat Clin North Amer* 16:447-458, 1969.
3. Finch SM: Sex education: the role of the physician. *Univ Mich Med Ctr J* 32:208-211, 1967.
4. Brown TE, McKegney FP, Sarrel P, et al: The role of the medical center in sex education. *J Amer Med Women's Assoc.* 23:187-194, 1968.
5. Hill HM: Sex counseling and the physician. *Med Time* 97:157-162, 1969.
6. Homel SR: Symposium on the physician and sex education foreword. *Pediat Clin North Amer* 16:327-328, 1969.
7. Randall HB: Whose responsibility is sex education? *Med Arts Sci* 23:19-24, 1969.
8. Golden JS, et al: The doctor and sex education. *Calif Med* 115:60-66, 1971.
9. Marcotte DB, Kilpatrick DG: Persistence, planning patience, and prevention: Aspects of sex education in medicine. *J Sex Marital Th* 2:47-52, 1976.
10. Kelly GF: Role-palying to develop sex counseling skills. *J Sex Educ Ther* 2:14-17, 1976.
11. Turner NW, Stayton WR: An innovative model for training professionals in human sexualtiy. *J Sex Educ Ther* 2:49-52, 1976.

12. Wallace D: Quality sex education for medical students. Paper presented at Western Regional Conferences, AASECT, Phoenix, 1977.
13. Sutton L: Love Toad (California: Multi Media Resource Center).
14. Sutton L: Sunbrushed (California: Multi Media Resource Center).
15. Sutton L: Ripple in Time (California: Multi Media Resource Center).
16. Reaching Orgasm, CORT, Media Productions, University of California, San Francisco.
17. Stenchever MA: Human Sexual Behavior: A Workshop in Reproductive Biology. Case Western Reserve University, 1970.
18. Annon JS: The Behavioral Treatment of Sexual Problems. Vol. I. Hawaii, Kapiolani Health Services, 1974.



## Radiology

### Case of the Month #49

Luther Creed, M.D.  
Gerald D. Pond, M.D.

Editors:

Jonathan Levy, M.D.  
Gerald D. Pond, M.D.

A twenty-nine year old post-partum female presented with right flank pain. Fluid challenge increased her systems, as did alcohol ingestion. An IVP showed a dilated, tortuous right ureter with an extrinsic defect (arrowhead) at the junction of the proximal and middle thirds (Figure 1). A retrograde study also showed diffuse dilation but the ureter emptied freely. A CT scan showed an engorged vein (white arrow) crossing the ureter (black arrow) (Figure 2).

1. What syndrome is suggested by the history and IVP?

2. What clinical and radiologic findings are against that diagnosis?



Figure 1

From: University of Arizona Health Sciences Center, Tucson, Arizona 85724.





## Regional Anatomy Regarding the Placement of Central Venous Cannulas

L. M. Cobb, M.D.  
J. Catlin Goss, M.D.  
Robert B. Gilsdorf, M.D.

Editor:  
Jack A. Friedland, M.D.

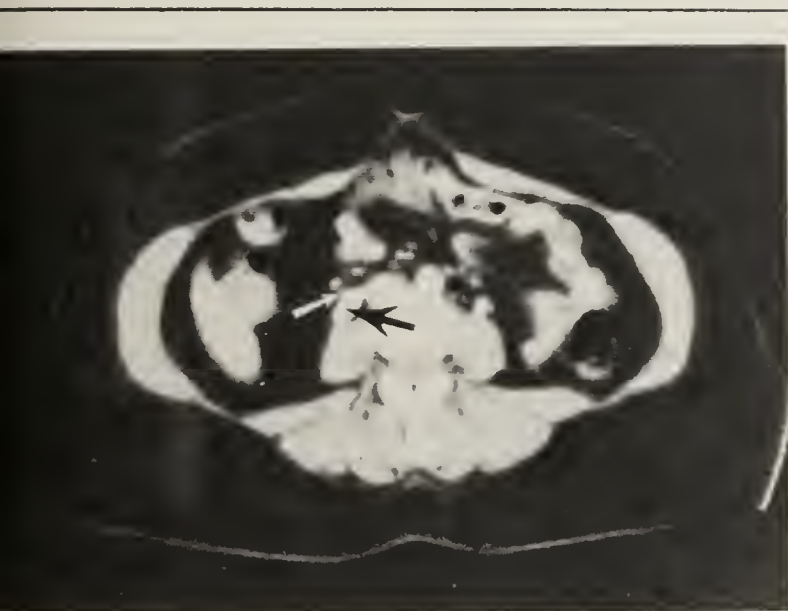


Figure 2

Central venous catheterization (CVC) is a bedside procedure essential to the practice of medicine and surgery today. Every physician with hospital privileges, and the responsibility that caring for hospitalized patients entails, should be capable of placing these catheters when they are required. There are several approaches to the great veins of the neck and subclavian region but all have well documented hazards.<sup>1-5</sup>

Essential to reducing the risk of central venous catheterization is knowledge of the regional anatomy and its relationship to topographic landmarks. This report is of a study of the anatomy of this region with specific reference to: 1) the topographic relationships of the subclavian and jugular veins and 2) the angles of approach and distances of needle travel required for safe needle insertion.

From: The Department of Surgical Education Good Samaritan Hospital, Phoenix Integrated Surgical Residency Program, Phoenix, Arizona (Drs. Cobb and Gilsdorf), and University of Oregon Health Sciences Center, (Dr. Goss, Associate Clinical Professor of Surgery and Director of Surgical Education, Good Samaritan Hospital, Portland, Oregon). Reprint requests to Robert B. Gilsdorf, M.D., Director, Surgical Education, Good Samaritan, 1033 East McDowell Road, Phoenix, AZ 85006.

Continued on Page 37 →

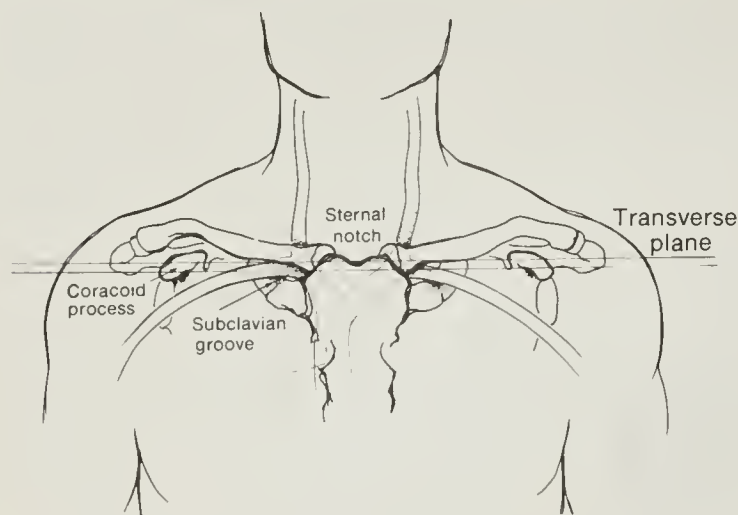


Figure 1

Anterior view of central veins showing frontal plane relationships.

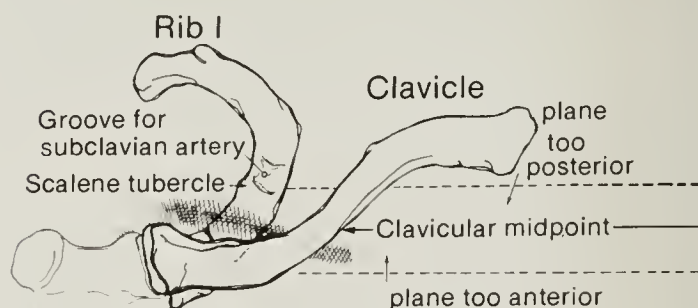


Figure 2

Cephalic view of central veins showing horizontal plane through which it is safe to approach the subclavian vein.

## Materials and Methods

Dissections of the subclavian and jugular veins and related structures were performed in 13 cadavers. In these adult specimens the angles of approach and the distances from the skin surface to the vein, and to deeper or adjacent structures were measured. These data were used in developing guidelines to instruct resident house officers in catheter placement technique.

The complications of CVC placement over a one year period were tabulated from the Internal Medicine and General Surgery training programs at Good Samaritan Hospital. Retrospectively, these complications were analyzed to further develop the anatomic landmarks, depth, and distances for safe CVC placement.

## Results

**Anatomic Findings.** The anterior-posterior and the cephalic view of the anatomy are seen in Figures 1 and 2, respectively. The most important area of this region is the junction of the subclavian and jugular veins. These two vessels meet under the clavicular head never more than 4.5 cm from the sternoclavicular joint. This junction lies in a transverse plane drawn from the coracoid process to the sternal notch, both of which are easily palpable landmarks no matter how obese the patient may be. The front wall of the junction lies immediately behind and lateral to the joint; rarely is there any tissue between the back side of the sternoclavicular joint and the veins.

The subclavian vein lies lateral to its jugular junction and courses over the first rib for a distance of 2.5 to 3.5 (avg 3.0) cm. This groove and its vein lie in the same transverse horizontal plane that crosses the coracoid process, the midpoint of the clavicle, and the sternal notch. The clavicle measures 15 to 18 cm in length with a midpoint mean of 8.5 cm.

The scalenus anticus muscle (with the phrenic nerve on its anterior surface) lies behind the subclavian and jugular veins and attaches to the scalene tubercle of the

first rib. This tubercle is palpable except in obese or "bullnecked" persons. The subclavian artery runs posterior to this tubercle and hence some freedom is allowed in directing the needle posteriorly in the coronal plane. The artery can be punctured, however, if the approach angles behind the tubercle or the needle is inserted lateral to the midpoint and is therefore in too posterior a coronal plane.

These anatomic relationships give the rules to approach the subclavian vein. With the patient supine with his arms at his side, the approach is made about 9 cm. from the sternoclavicular joint in a horizontal plane with the needle placed in the line that crosses the coracoid process and the sternal notch. In the horizontal plane, the clavicular midpoint is usually struck by the needle and the needle must be directed slightly deep until it slides under the clavicle. The needle is then free in this same line to approach the vein over the first rib, past the scalene tubercle. All subsequent passes of the needle are kept in the same coronal plane of the coracoid to sternal notch directing the tip of the needle further and further posteriorly, but always anterior to the scalene tubercle.

The dangers in the approach arise from the proximity of the pleura and the subclavian artery. The pleura is adherent to the subclavian vein (actually the jugular subclavian junction) once it crosses the rib. Therefore, if the needle probes too far along the coracoid-sternal notch plane, penetration of the pleura may occur.

The internal jugular vein lies under the sternocleidomastoid muscle above the clavicle. The muscle's two heads form a triangle with their confluence forming the apex and the clavicle forming the base (Figure 2). The vein is under the lateral portion of this triangle, or under the clavicular head of the muscle when the head is turned away from the side of the catheter placement. This sternocleidomastoid triangle's lateral side overlies the scalenus anticus muscle and the scalene



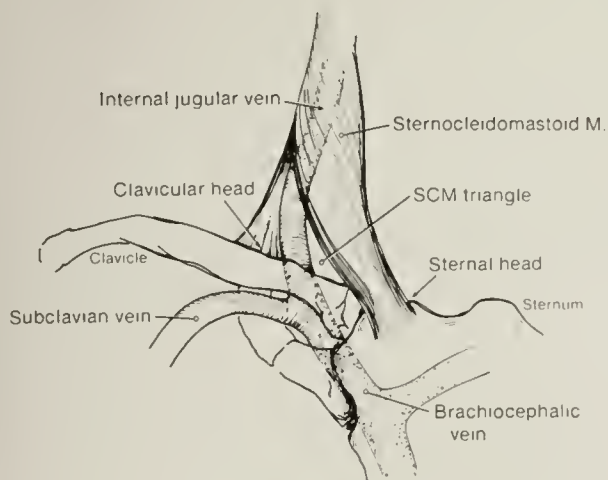


**Figure 3**

The sternocleidomastoid triangle used to approach the jugular vein.

tubercle is lateral to the triangle.

The carotid artery runs posterior to the vein at this level but it runs anterior and superficial to the jugular vein above the midpoint of a line between the clavicle and the angle of the mandible. The sternocleidomastoid varies greatly in thickness and the vein lies from 1.0 to 1.5 cm deep to the muscle. Not until it courses behind the sternoclavicular joint does it come into a fixed anatomic relationship with the skeleton where it lies immediately behind the bony structures. The pleura lies lateral and deep to the junction with the subclavian vein and the artery lies immediately posterior to the vein at this point.

The preferred approach to the internal jugular vein has been described by English<sup>6</sup>. The needle is inserted at the apex of the sternocleidomastoid triangle. It is then directed at a 30-45° angle to the skin along the lateral edge of the sternocleidomastoid triangle. The distance is described below. If the initial attempt is unsuccessful, the needle is directed slightly lateral, under the clavicular head of the muscle. The scalene tubercle is located to establish the position of the subclavian artery, the structure most frequently injured.

Another approach to the jugular vein (actually the brachiocephalic), is to insert the needle 3 cm. above the sternoclavicular joint near the apex of the sternocleidomastoid muscle triangle. The patient's head is turned away from the side of the stick and the needle is advanced aiming at the xyphoid. The clavicle is struck and the needle redirected posteriorly keeping in the same plane of the triangle apex to the xyphoid. Approaches greater than 30° posteriorly or lateral to this plane put the right brachiocephalic or left carotid artery and the pleura at risk. The right side is preferred for this approach since the internal jugular, brachiocephalic veins, and superior vena cava are all in the same straight line as the needle tract.

Finally, the right atrium ranged from 9 to 12 cm from

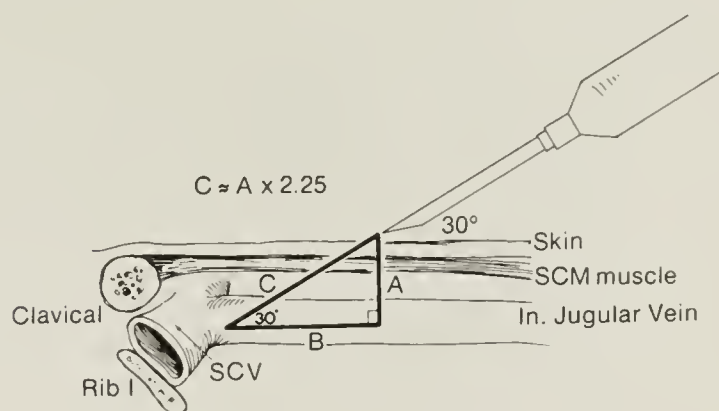


**Figure 4**

A means of calculating the depth of the jugular vein in thick necked patients. Further note the "level down" position of the needle used in the approach to central venipuncture.

the sternoclavicular joint with an average of 10.0 cm. In properly positioning the catheter, the end should be at the superior vena cava junction with the atrium and not into the chamber. The length of the catheter to remain outside of the puncture site should be determined before inserting by adding the 10 cm for the sternoclavicular joint to the atrium distance to the distance from the joint to the puncture site. This sum should be subtracted from the total length of the catheter, giving the length of the catheter to be left outside of the body.

**Clinical Data.** At Good Samaritan Hospital, all residents are expected to place their own central venous catheters into their patients. There is no central venous catheter team. Each resident receives instruction and guidance on the first two placements and then must place the catheter themselves thereafter. An ongoing audit of the central venous catheter placement complications is maintained but the total number of attempts at placement is not known. A conservative estimate of the number of attempts is 500 in the year of this report. Twelve complications have been reported, four of which were life threatening. There were two pneumothoraces, three arterial punctures with bleeding (one was a patient with a severe coagulopathy), and one combined hydro-pneumothorax. There were also three cases of bacteremia associated with catheters, one sheared off catheter, and two air embolism cases (both post insertion from detached tubing). The anatomic related injuries, therefore, accounted for six complications or approximately 1% of catheter placements.

#### Discussion

Since Aubaniac described intraclavicular percutaneous cannulation of the subclavian vein in 1952,<sup>7</sup> the literature has been replete with documenting complications and new methods to avoid them.<sup>6,8,9</sup>

Central venous cannulation is percutaneous, therefore, a thorough knowledge of topography relating to deep structures to be entered or avoided is essential.

Errors of distance or direction of a few millimeters may result in complications.

To reiterate, topographical structures important to subclavian vein catheterization are: a) the clavicular midpoint (approximately 9 cm from the sternoclavicular joint), b) the sternal notch, c) the coracoid process, and d) the scalene tubercle. It is important to establish the clavicular midpoint at the level of the bone, not the skin. The skin puncture site should be lateral to this since the direction of the needle travel is mediad.

The needle should go in a precisely horizontal line parallel to the floor aiming toward the sternal notch at the level of the coracoid process. The scalene tubercle gives a precise landmark to the safe area which is the vein groove over the first rib. This subclavian groove is the only place the vein should be entered.

The needle should touch the clavicle subcutaneously at its precise midpoint, then proceed mediad toward the sternal notch. If the needle has traveled the 3.0 cm from the clavicular midpoint to the subclavian groove and has gone the 3.0 cm in the safe area, a total of 6 cm, and no flashback of blood is encountered, the needle should be slowly withdrawn while aspirating. To proceed farther mediad is hazardous.

The main cause of "dry sticks" in this approach is too superficial a needle tract. From figure 2 it can be seen that an approach medial to the clavicular midpoint and head can result in a stick superficial (anterior) to the vein, although nothing is there to be injured. On the other hand, the pleura or subclavian artery can be encountered in an approach lateral to the true clavicular midpoint, by being in too posterior a plane.

The internal jugular vein puncture, we find, is generally easier than the subclavian vein puncture. Arterial puncture is more common than with the subclavian attempts but it is in an area where the artery can be easily compressed. Pneumothoraces are much less frequent. The catheter once inserted is harder to stabilize and dress, and bacteremia and catheter and vein thrombosis is probably more common here.<sup>4</sup>

In difficult cases of bullnecked or obese patients in which the jugular catheter must be placed, the skin to vein distance may be estimated by using the Pythagorean theorem. A 22 gauge 1½" needle is used to probe vertically at the apex of the sternocleidomastoid triangle. Once the depth of the vein has been determined, the venipuncture can be made with the large needle used for catheter insertion at 30° starting at the same site as the vertical venipuncture. The distance the needle may safely travel in the 30° approach is 2¼ times the vertical distance. If a 45° puncture is used, the depth is 1½ times the vertical distance.

The alternative approach to the internal jugular vein through the base of the sternocleidomastoid triangle is dangerous. An infraclavicular arterial puncture at this site is harder to control than if it occurs higher in the neck. Attempts higher on the neck, however, should be below the midpoint between the angle of the mandible

and the clavicle. Above this, the more superficial position of the carotid artery puts it between the skin and the vein. In patients with coagulopathy, central venous cannulation is relatively safe if performed by the internal jugular vein approach where arterial bleeding is readily controlled.

### Summary

An analysis of regional anatomy suggests that certain topographical landmarks are constant and therefore reliable in determining the needle tract distance and direction in placing central venous cannulas safely. Adhering to the described anatomically based principles can make catheter placement a safe procedure with an approximately 1% complication rate.

### Acknowledgements

The authors wish to thank the Department of Anatomy, University of Oregon Health Sciences Center, for their kindness in making their laboratory available for this study of regional anatomy.

### References

1. Adar R, Mozes M: Fatal complications of central venous catheters. *Brit Med J* 3:746, September 25, 1971.
2. Bernard RW, Stahl WM: Subclavian vein catheterization: A prospective study. I. Noninfectious complications. *Ann Surg* 173:184-190, Feb 1971.
3. Malitinsky J: Misplacement and loop formations of central venous catheters. *Acta Anaesthesiol Scand* 20(3):237-247, 1976.
4. Nottage WM: Iatrogenic superior vena cava syndrome. A complication of internal jugular vein catheterization. *Chest* 70(4):566-567, Oct 1976.
5. Smith BE, Modell JH, Gaub ML, et al: Complications of subclavian vein catheterization. *Arch Surg* 90:228-229, Feb 1965.
6. English IC, Frew RM, Pigott JF, et al: Percutaneous cannulation of the internal jugular vein. *Thorax* 24:496-497, 1969.
7. Aubanica RL: L'injection intraveineuse sous-claviculaire. Avantages et techniques. *Presse Med* 60:1456, 1952.
8. Craig RG, Jones RA, Sprol GJ, et al: Alternative methods of central venous system catheterization. *Am Surgeon* 34:131-134, Feb 1968.
9. Segall MM: Infraclavicular subclavian venous catheterization. *Surg G & O* 148:925-926, Jun 1979.



# Radiology Continued

## Answer

1. The symptoms suggest the "ovarian vein syndrome."

2. The findings against that diagnosis are a) Dilatation of the *entire* ureter, rather than only above the presumed obstructing vein. b) The retrograde pyelogram revealed a *freely* emptying ureter.

### Discussion

Clark introduced the concept of "ovarian vein syndrome" in 1964.<sup>3</sup> The entity is characterized by back pain and a history of recurrent urinary tract infections. The patient's symptomatology is exacerbated by fluid challenge or agents with a diuretic effect such as alcohol. The hypothesis which has been put forth to explain the syndrome is obstruction of the patient's ureter due to compression from an engorged ovarian vein at the point of crossing the two structures. (This point of crossing is nicely demonstrated on the CT scan). Clark recommended ureterolysis and vein excision as the treatment of choice.

In the patient presented, the radiographic findings (dilatation of the entire ureter and a freely emptying ureter by pyelography) ruled out the diagnosis of "ovarian vein syndrome," even though the patient had a strong clinical history. The dilated ureter was probably secondary to pregnancy, which occurs not uncommonly and is usually of no clinical significance. By radiographically confirming that the symptoms did not represent the "ovarian vein syndrome," an unnecessary surgery may have been prevented. In fact, there is doubt in some circles as to whether the syndrome exists at all. Many studies have failed to show demonstrable evidence of ureteral obstruction as a result of ovarian vein dilatation. In this patient, the ovarian vein is markedly dilated but does not obstruct the ureter. It merely makes an extrinsic impression. Ureteral obstruction can occur secondary to ovarian vein disease but is almost always due to thrombophlebitis. This produces perivenous inflammation and fibrosis which ultimately can stenose or occlude the ureter.

How does one explain the "ovarian vein syndrome"? It has been suggested that the pain is produced by venous engorgement alone, and is unrelated to obstruction of the urinary tract.<sup>1</sup> This hypothesis is supported by the fact that several patients have been "cured" of their disease by venous excision alone.

### References

1. Coolsaet, BLRA: Ureteric pathology in relation to right and left gonadal veins. *Urology* 12:40-49, 1978.
2. Dure-Smith P: Ovarian syndrome. Is it a myth? *Urology* 13:335-363, 1979.
3. Witten DM: Emmett's Clinical Urography. 4th Ed., W. B. Saunders, 1977, pp. 2149-2155.



## Special Article

### Beyond Medicaid

Andrew W. Nichols, M.D., M.P.H.

This paper, based on a presentation to The Arizona State Division of the American Association of University Women, concerns itself with health care for the medically indigent in Arizona. For some this means Medicaid; for others it means alternatives to Medicaid; for still others it means anything but Medicaid. This discussion will focus on looking beyond Medicaid. It is a call to consider more creative options in the context of whatever unique opportunities may exist to do so.

Basically, the presentation is divided into three parts. The first, is an attempt better to define the ethical basis for concern and examine what may be achieved through any indigent health care program. Following this discussion of the ethics of health care, opportunities for action in Arizona today will be considered, focusing on some of the more creative policy options currently available. Finally, various approaches to indigent health care will be evaluated and recommendations will be made concerning which of these would likely be most effective.

#### Ethics of Health Care

In a discussion of this significance it is important to be clear about what we are talking — and not talking. We are *not* talking about health, except in a most indirect sense. We *are* talking about health care or health services and the quality of life which results. Properly understood, this is sufficient justification for any program of medical care — whether to the medically indigent or to others.

As we consider health care, it is important to recognize the limitations of modern medicine. The capacity of the health care delivery system, armed with

Based on an address to the Fall Workshop, Arizona State Division, American Association of University Women, October 4, 1980, Tucson, Arizona. Reprint requests to Dr. Nichols, Associate Professor, Department of Family and Community Medicine, University of Arizona College of Medicine, Tucson, Arizona 85724.



modern technology, to influence life and death outcomes in individual cases is well known. Less well appreciated are the limitations of this same health care system significantly to alter health indices (e.g. infant mortality) in a post industrial society. So much progress has been made in the prevention of disease by our social system that only marginal change now tends to result from increased expenditures.

This is not to say we should give up the effort of providing health services. It is the nature of the human condition to want medical attention in the face of illness. The medically indigent are no less desirous than others to receive medical care — and, possibly, are somewhat better positioned to benefit from it. That is, they are less "at the margin" in terms of their potential benefit from an adequate system of comprehensive health care than are the non-indigent.

Nonetheless, the primary social good to which we are referring is not "health," but "quality of life." Health care has come to be seen as a moral right in our society.<sup>1</sup> Available medical care is part of the "good life." It is — or has become — a moral entitlement. As such, it is an essential component of the quality lifestyle to which most individuals aspire.

Unlike what might be expected of other components in a "quality" lifestyle, the economics of health care either does not follow classic laws of supply and demand or follows these laws so tangentially as to escape the notice of all but the most astute economist.<sup>2</sup> Demand functions, in a word, seem little responsive to price. Demand for health care often appears insatiable. The more health care becomes available, the more people want.

This would be acceptable if resources were not limited. Since resources are limited, health care services are typically rationed by money or by time. In our society we primarily use the former, with the result that little rationing occurs — except among the poor. Other societies (e.g. Great Britain) ration more by time, causing some inconvenience in the process, but achieving greater efficiencies than do we through use of money. This is attested, in part, by a lower percentage of their gross national products being invested in health care services than is true in the United States.

The problem with rationing any desired commodity, whatever the means employed, is one of justice or "fairness." This doctrine holds that the allocation of scarce resources should be on the basis of need, independent of the socio-economic status or "social utility" of the recipient.<sup>3</sup> Does an application of the "fairness doctrine" assure equality of health care to all citizens, including the poor? The answer, realistically, must be "no." What can be guaranteed is access to a standard

of care consistent with that quality of life to which all citizens have a moral right to aspire. This is equity — not equality. Equity is what government can deliver by providing reasonable access to health care service for *all* its citizens.

The question becomes one of how "fairness," in the sense just described, can be delivered. Various programs have been devised by local, state and federal governments to promote access and assure equity. Some of the better known federal programs include the National Health Service Corps, community health centers, and children and youth projects. State and local programs (often with federal financial assistance) include practice commitment with loan forgiveness, rural preceptorships, and family practice training programs, and use of new health practitioners (nurse practitioners and physician's assistants).

Perhaps the most significant entitlement programs ever to be put in place in the U.S., with direct implications for access, are Medicaid and Medicare — both of which attempt to reduce inequities in service delivery to underserved populations by increasing the purchasing power (or "money supply") of those groups. Medicaid is that program specifically designed to promote access for the poor. As a joint state-federal effort, Medicaid (unlike Medicare) requires state initiative and financial participation in order to get underway. To date, Arizona remains the only state in the union to elect non-participation.

### Opportunities for Action

The fact that Arizona is a non-participant in the Medicaid Program — and thus has not accepted federal support under that program for care of its medically indigent — provides the basis for the remainder of the paper. That is, however valid or invalid the reasons for non-participation are perceived to be, the fact of non-participation is rapidly creating a financial crisis in that level of government currently responsible for providing such care — the counties. While one outcome of such a crisis may well be the funding of Medicaid in Arizona, this period of financial hardship also provides an opportunity for Arizona to develop fresh solutions to its indigent health care problem. In doing so, Arizona may at this unique moment in history have an opportunity to go "beyond Medicaid."

Arizona counties are currently spending approximately 25% of their budget or well over 100 million dollars in the support of indigent health care.<sup>4</sup> It has been conservatively estimated that at least half of this amount or \$50 million dollars would be saved each year if Arizona were to receive federal matching funds and participate in the Medicaid program. Other estimates contend that if

all federal programs which directly or indirectly relate to Medicaid funding are considered, Arizona is losing approximately \$100 million dollars per year as a consequence of not participating in Medicaid. For example, in 1978 alone it is estimated that state lost \$3.6 million in AFDC (Aid to Families with Dependent Children) funds as a result of not participating in Medicaid.<sup>5</sup>

Reasons advanced in the past for not joining the Medicaid program have varied but generally center around the high and uncontrollable costs of Medicaid programs in other states. The majority consensus of legislative policy makers has consistently been that Arizona did not wish to become involved in such an uncontrollable entitlement program in view of negative experience elsewhere. Other concerns about Medicaid relate to the fact that it is strictly a financing program, with little impact on the health care delivery system. What is needed, some have argued, is a more basic change in the system of health care delivery, thus reducing incentives for unnecessary care and promoting wellness among the population.

Whatever the case for or against Medicaid, the problem for counties was exacerbated in June when voters approved a series of constitutional amendments mandating strict revenue and spending limitations on governmental entities in Arizona, including counties. The result of these amendments (quite apart from the temporary scare of the now-defeated Proposition 106) is that county governments are being put under increasing pressure to control or eliminate entitlement programs such as those for indigent health care. It has been predicted that by 1982, assuming no Medicaid reprieve, counties will either have to curtail drastically their indigent health care programs or turn to the state and federal government (from sources other than Medicaid) for assistance. One estimate of indigent health care program costs in Arizona by 1985 is \$225 million — an increase of 140% over 1979 costs and an amount in excess of the estimated revenue generating power of Arizona counties.<sup>6</sup> Thus is presented the opportunity, perhaps only for a brief period in history, to explore alternative systems for the organization, financing and delivery of health care in Arizona. Even if Medicaid were ultimately to be adopted, such programs could play an important role in cost containment and rationalization of service delivery.

One program which has been considered in the past in Arizona and elsewhere is catastrophic health insurance. The greatest problem facing most families is not the day to day medical expenses which everyone incurs, but the



# In Hypertension\*...When You Need to Conserve K<sup>+</sup>

## Every Step of the Way

Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

ADD OR SUBSTITUTE GUANETHIDINE

ADD VASODILATOR

ADD BETA-BLOCKER, CNS INHIBITOR OR RESERPINE

**EFFECTIVE STEP 1 DIURETIC THERAPY<sup>†</sup>** (when the combination represents previously titrated dosage)

<sup>†</sup>Step 1 usually consists of an initial phase (a diuretic alone), a titration phase (dosage adjustment and/or addition of a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent) and a maintenance phase (a diuretic alone or in combination with a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent).

### Serum K<sup>+</sup> and BUN should be checked periodically (see Warnings).

Before prescribing, see complete prescribing information in SK&F Co. literature or PDR. A brief summary follows:

#### WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K<sup>+</sup> levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K<sup>+</sup> intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, throm-

bocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Watch for signs of impending coma in severe liver disease. If spironolactone is used concomitantly, determine serum K<sup>+</sup> frequently, both can cause K<sup>+</sup> retention and elevated serum K<sup>+</sup>. Two deaths have been reported with such concomitant therapy (in one, recommended dosage was exceeded, in the other serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with thiazides. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Anti-hypertensive effect may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. The following may occur: transiently elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitals intoxication (in hypokalemia), decreasing alkali reserve with

possible metabolic acidosis. Dyazide interferes with fluorescent measurement of quinidine. Hypokalemia, although uncommon, has been reported. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth, anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions, nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances. Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and, rarely, allergic pneumonitis have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components.

**Supplied:** Bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

©SK&F Co., 1980

**SK&F CO.**  
a SmithKline company  
Carolina, P.R. 00630



# AN EXCEPTIONALLY FAVORABLE



## You can expect rapid relief of a broad range of symptoms

With Limbitrol, patients often improve within a week. Not only is insomnia relieved, but you will often see early relief of agitation, psychic and somatic anxiety, anorexia and feelings of guilt or worthlessness. This early response encourages patients to stay in therapy.

## You can minimize phenothiazine drawbacks

When you choose Limbitrol over a phenothiazine-containing product, you minimize the risk of tardive dyskinesia — now associated even with low dose, short-term phenothiazine therapy.<sup>1,2</sup> You also reduce the possibility of other extrapyramidal side effects, which occur in approximately 30% of patients receiving phenothiazines.<sup>3-5</sup> In contrast, the reported incidence of these disturbing reactions with Limbitrol or either of its compo-

nents alone is rare. (For a complete list of side effects reported with Limbitrol, please consult full disclosure.)

**References:** 1. Poulson GW *NY State J Med* 79: 193-195, Feb 1979. 2. Hollister LE Antipsychotic medications and the treatment of schizophrenia, chap. 9, in *Psychopharmacology from Theory to Practice*, edited by Barchas JD et al. New York, Oxford University Press, 1977, pp 134, 145. 3. Domino EF Antipsychotics phenothiazines, thioxanthenes, butyrophenones and rauwolfia alkaloids, chap. 25, in *Drill's Pharmacology in Medicine*, ed. 4, edited by DiPalma JR. New York, McGraw-Hill Book Company, 1971, p. 476. 4. Sovner R, DiMascio A Extrapyramidal syndromes and other neurological side effects of psychotropic drugs, in *Psychopharmacology: A Generation of Progress*, edited by Lipton MA, DiMascio A, Killam KF. New York, Raven Press, 1978, p. 1021. 5. Danlon PT, Stenson RL *Dis Nerv Syst* 37: 629-635, Nov 1976.



# SAFETY/BENEFIT RATIO



What  
better reason  
to choose  
Limbitrol  
for your  
patients with  
moderate depression and anxiety?

# Limbitrol®<sup>IV</sup>

**Tablets 5-12.5** each containing 5 mg clordiazepoxide and 12.5 mg amitriptyline  
(as the hydrochloride salt)

**Tablets 10-25** each containing 10 mg clordiazepoxide and 25 mg amitriptyline  
(as the hydrochloride salt)



## Efficacy without a phenothiazine

Please see summary of product information on following page.

## LIMBITROL® TABLETS Tranquilizer—Antidepressant

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Relief of moderate to severe depression associated with moderate to severe anxiety.  
**Contraindications:** Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

**Warnings:** Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

**Usage in Pregnancy:** Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

**Precautions:** Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated.

Sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy.

Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

**Adverse Reactions:** Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs.

**Cardiovascular:** Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke.

**Psychiatric:** Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.

**Neurologic:** Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.

**Anticholinergic:** Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

**Allergic:** Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.

**Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

**Gastrointestinal:** Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.

**Endocrine:** Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels.

**Other:** Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

**Overdosage:** Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. I.V. administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

**Dosage:** Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single h.s. dose may suffice for some patients. Lower dosages are recommended for the elderly.

Limbitrol 10-25, initial dosage at three to four tablets daily in divided doses, increased up to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher dosages.

**How Supplied:** White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt) — baffles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10, Prescription Paks of 50.

## How to initiate and maintain therapy

### Select dosage strength appropriate for each patient

- ☐ Limbitrol 5-12.5 is recommended to minimize drowsiness and for elderly patients.
- ☐ Limbitrol 10-25 may be indicated for patients who tolerate medication without undue side effects.

### Specify daily dosage based on symptom severity

- ☐ An initial dosage of three tablets is recommended.
- ☐ Dosage may be increased to six tablets or decreased to two tablets daily as necessary.
- ☐ Once a satisfactory response is obtained, patients should be continued on the smallest dose required to maintain the desired effect.

### Utilize dosage options to best accommodate individual patient needs

- ☐ T.I.D. or Q.I.D., familiar regimens most suited for patients who tolerate medication without undue drowsiness.
- ☐ Two tablets one hour before bedtime and one tablet midday may minimize daytime drowsiness and help relieve a common target symptom — insomnia.
- ☐ Entire dosage h.s. to take maximum advantage of the sedative effect.

# Your guide to patient management... when you decide medication is needed

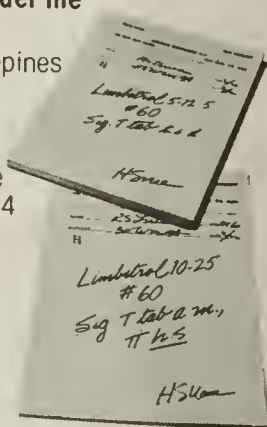
## How to make each patient an informed patient

1. Discuss with patients the probability that they will experience drowsiness, especially during the first week.
2. Reassure your patients that drowsiness is an indication that the medication is working and that it may help alleviate their insomnia.
3. Encourage patients to report if drowsiness becomes troublesome so that, if necessary, dosage schedule can be adjusted.
4. Caution patients about the combined effects with alcohol or other CNS depressants. Let them know that the additive effects may produce a harmful level of sedation and CNS depression.
5. Caution patients about activities requiring complete mental alertness, such as operating machinery or driving a car.
6. Warn pregnant patients and patients of childbearing age that the safety of Limbitrol in pregnancy has not yet been established.

Please see complete product disclosure for other pertinent information.

### Limbitrol should not be used under the following circumstances:

1. Hypersensitivity to benzodiazepines or tricyclic antidepressants.
2. Concomitantly with an MAO inhibitor. To replace an MAO inhibitor with Limbitrol, discontinue MAO inhibitor for a minimum of 14 days before cautiously initiating Limbitrol therapy.
3. During the acute recovery phase following myocardial infarction.



ROCHE PRODUCTS INC.  
Manati, Puerto Rico 00701

In moderate depression and anxiety  
**Limbitrol®**  
Relief without a phenothiazine



catastrophic illness which wipes out a lifetime of savings and destroys a family's financial integrity. Such programs have been proposed at the national level (e.g. Long-Ribicoff proposal), but have never been adopted. Reasons for this are complex, including the concern on the part of many that an established catastrophic health insurance program will "pull the plug" on any impetus for a system of universal health care (National Health Insurance, National Health Service, etc.). Unwilling to wait for federal initiative in this area, at least five states (Hawaii, Rhode Island, Minnesota, Maine, and Connecticut) have already adopted state health programs which include some degree of protection against catastrophic illness.<sup>7</sup> Accordingly, catastrophic health insurance is one program which Arizona may wish to consider at the present time.

A second program which has been proposed at both the state and national level is "kiddie care" or a child health program dedicated to the care of all children up to a certain age. Programs of this type are justified on the grounds that they ultimately avert medical problems and large financial outlays by early identification of problems, thereby preventing serious consequences. The state's premature infant transport program is one example of a successful, but limited, child care activity of this type. It is currently estimated that there are over 40,000 indigent and 60,000 "notch" (those ineligible for county support, but unable to afford adequate medical care) children in the State of Arizona.<sup>4</sup> A program such as that proposed by the Governor in 1978 deserves consideration at this time.<sup>8</sup>

A third kind of program which could be established is that of preventive screening for the elderly. While Arizona automatically participates in the federal Medicare program, this program (like Medicaid) is a financing program structured around existing patterns of health care service delivery. What is lacking at the present time is a preventive screening program which would (as with a child health program) emphasize early detection and treatment for this high risk population. Since it is a well known fact that utilization of health care services in the over-65 population is four to five times as high as that in the under-65 population, anything that could be done to detect and ameliorate serious illness during this period would be both cost effective and socially responsible. A program such as that proposed as part of the Governor's 1979 health care package could be included in any comprehensive Arizona health care program.<sup>9</sup>

Still another approach to the financing and organization of health care which has enjoyed increasing popularity throughout the country over the past

decade has been the Health Maintenance Organization or HMO. Invoking the principle of prepayment, the HMO places an incentive on "keeping people well" rather than caring for the sick. It also provides an organized pattern of practice within which health care quality may be assured. As component part of both the Governor's and Legislature's 1979 health care proposals, some method of using HMOs in the delivery of health care to indigents may enable the state more accurately to budget its health care expenditures through defined prepayment premiums for designated populations.<sup>6,9</sup> It should also permit the recipients of care to receive more preventive health services in settings with built-in assurance of quality control.

A number of models invoking the prepayment principle have been developed. These include the so-called "closed panel" practices, which involve only a limited and identified group of providers in group practice settings, as well as the Independent Practice Associations (IPAs), which typically involve a larger number of physicians operating out of their private offices.<sup>10</sup> One variant of this latter model which is of particular interest and which might be considered in the state at this time is that carried out by the SAFECO Insurance Company in Seattle, Washington.<sup>11</sup> This program, United Health Care, establishes a "paper account" covering total health care expenses in a given year for each of its enrollees. SAFECO turns this account over to a designated primary care practitioner who is, in turn, responsible for *all* care received by patients enrolled in his or her practice. At the end of the year an accounting takes place between that practitioner and the company based upon the amount of hospitalization, outside referrals, etc., which took place during the year and for which the company was liable. To the degree that there is a saving, the provider benefits; to the degree that there has been a cost overrun, the provider is penalized. Such programs might be a useful adjunct to the "closed panel" approach particularly in rural areas.

Still another focus which has yet to be explored in Arizona is the legislatively authorized health service district. Created by the Arizona Legislature in 1977, the health service district would enable a group of individuals in a defined area to establish a quasi-governmental entity not unlike a school district in concept.<sup>12</sup> This entity would then have the right to provide health services to residents of the district and, by majority vote, to tax and bond for this purpose. If health service districts were structured as public HMOs, and recognized as such by the state, they might effectively complement existing urban-based HMOs in any statewide program of pre-paid

health care. With appropriate state matching funds and incentives, the health service district has the potential of offering a unique approach to health care organization, financing and delivery at the local level and is one model which Arizona might well offer to the nation.<sup>13</sup>

A final area in these examples, but not final in terms of creative options open to the State of Arizona, would be a program aimed at disease prevention and health promotion. Working in collaboration with the private insurance industry, the state could help develop reimbursement packages that would provide financial incentives for healthy living. That is, a reduction in insurance premiums or HMO costs could be given to members who participate in health promotional activities or who did not engage in activities detrimental to their own health. While such a program would have to be approached with care, taking into account community rating principles, this kind of model places an incentive on the consumer to lead a healthier life. Still another variant is the return of premium concept recently employed by a California school district, in which the employee has a portion of that year's premium dollar credited to his or her retirement account if little or no health services were utilized.<sup>14</sup> Once again, with an incentive for lower utilization, such programs must be approached cautiously, yet offer the appeal of reversing long held biases for ever greater service utilization.

The purpose of this section is not so much to outline all possible alternatives to either the present system of indigent health care in Arizona or a funded Medicaid program, but rather to suggest structural changes which conceptually go beyond Medicaid. That is, programs such as the foregoing deal with system governance, sources of revenue, targeted population groups, linkages of providers, changes in incentives for consumers and providers, etc. Unlike Medicaid, none of these programs in and of itself guarantees more federal financing. Rather, they offer means by which existing local and state revenues (and federal, should they become available) may be channeled to assure more effective service delivery.

#### Guidelines for Success

In order to address the question of how best to proceed in the development of creative health care program for Arizona, it may be helpful to introduce this discussion with some general observations. First, it has been noted that there is a certain "perversity factor" in Arizona. We are a state that is proud of our heritage and our independence. In general, we reward our representatives both at the state and national level for following an independent course of action. Given this orientation, we tend to resist programs which are thrust upon us



from outside, particularly those from Washington. This relates, in part, to an inherent suspicion of Washington by many Arizonans and a feeling that "we can do it better here."

A second observation is that in politics there are few "good guys" and fewer "bad guys." This romantic western dichotomy soon fades into meaninglessness as the process of compromise and negotiation takes place in the legislative arena. No lawmaker can or should be assumed to be for or against any particular piece of legislation until that legislator has had a chance to review it. Support not infrequently comes from unexpected quarters, particularly when those legislators are approached in a reasoned way with persuasive arguments and necessary supporting data. Obviously, the same may be said of executive personnel as of legislative personnel.

Another advantage which Arizona enjoys at the present time is strong leadership both in the executive and legislative branch of government. The capacity of each of these branches of government to lead in policy formulation has been demonstrated in the past several years. Perhaps most impressive is the ability of this leadership to come together around certain critical issues which are perceived as generally beneficial to the entire state. A recent example is ground water legislation, which emerged after months of intensive — and largely secret — negotiation among the principal parties under the leadership of the Governor. Complex problems such as groundwater, can be solved by the combined executive and legislative leadership in the state at such times as a consensus emerges that some action need be taken.

Given the foregoing, it is appropriate to review the goals resulting from the discussion on medical ethics which introduced this paper. The conclusion of this section was that government has the responsibility for guaranteeing access to a level of health care which is compatible with a basic quality of life. Increased access can best be achieved through implementation of a "fairness" doctrine in the distribution of limited or scarce resources. Given the many opportunities for action currently available, it is quite likely that a multiple program approach will emerge containing everything from catastrophic health insurance for all citizens of the state to some form of prepaid health care for the medically indigent, as well as the non-indigent. Such a complex package is always the result of compromise and this requires the participation of all concerned parties in its development.

Due to the critical status of health care financing in the state and the absence of a

funded Medicaid program, it would seem that the current year might offer an unusually productive opportunity to develop new programs in Arizona. Indeed, there may be a "narrow window" of one to two years within which Arizona has the opportunity to come up with alternatives to a simple financing of indigent health care through a mixture of state and federal monies (Medicaid). It is not unlikely that sentiment in the state toward Medicaid will change in the future, particularly as the new revenue and spending limitations on the part of county governments make themselves felt. The present chance for system change may then be lost.

In other words, Arizona now has the opportunity to prepare for Medicaid by reorganizing its health care delivery system. In so doing, Arizona would assure that it could more efficiently handle a Medicaid program, were it ever felt desirable by the state's lawmakers to take this course of action. Whether federal funding came or not, such a multiple approach program would be of great interest to health care planners elsewhere and could serve as a model to the entire nation for alternative forms of health care delivery.

It is the opinion of this observer of the health care scene that such a complex program could best be put in place through the kind of consensus process previously noted to have resulted in badly needed groundwater legislation. That is to say, if certain basic principles could be agreed upon in advance, and then representatives from all vitally concerned segments of society were invited to participate, this process should produce a consensus approach. That alone ought to result in passage of any finally submitted bill. Ground rules for participants in such a group might include:

1. A Medicaid program, as such, will not be funded in the 1981 legislative session. (This should not exclude the possibility of obtaining a Medicaid waiver for a program that was of sufficient interest to the state and which might qualify under existing Medicaid legislation.)
2. The current Medicaid law should not be subject to repeal in the upcoming session of the legislature.
3. Prepayment, capitation principles will be at the heart of any developed health plan for the state.
4. Disease prevention and health promotion will stand at the center of a comprehensive state program, demonstrating a commitment to a healthy lifestyle.
5. Cost containment, in an atmosphere of quality health care, shall be an objective of all programs to be developed.
6. To the degree possible, any programs designed for the medically indigent will be made congruent with programs for the

general population so as not to perpetuate and accentuate a "two class" medical care system in the state.

In an atmosphere such as the foregoing, all those who participate should do so in a spirit of accommodation and compromise, thus offering reasonable chance of success. If such a consensus effort were begun prior to the 1981 legislative session, it is possible that selected elements of a comprehensive health program proposal could be placed before the legislature in sufficient time for debate and possible action in 1981. More likely, any definitive action will come in a special legislative session or in the 1982 regular session. For even that to happen, consensus planning of the type described should begin at this time. The resultant adoption of a comprehensive state health plan would be a credit to Arizona and a benefit to the nation.

Robert McNamara in his recent retirement speech before the World Bank shared the familiar quotation about those who look at the world as it is and ask "why?" — as opposed to those who look at the world as it might be and ask "why not?". Now is the time to join together in developing a health program for the State of Arizona as it might be and then ask "why not?"

#### References

1. Veatch RM: What is "Just" Health Care discovery? In: *Ethics and Health Policy*. Veatch RM, Branson R: (eds), Cambridge, Mass., Ballinger, 1976.
2. Pelligrino ED: Medical economics and morality: The conflict of canons. *Hospital Progress*, 59(8), 50-55, 1978.
3. Rawls J: A Theory of Justice. Cambridge, Mass., Harvard University Press, 1971.
4. Dunn Sister Claire: Unpublished Communication. Based on data derived from Arthur Young Study Funded by Arizona State Legislature. Tucson, August, 1980.
5. Apache County vs. Suzanne Dandoy, M.D. #13232 Amici Curiae Brief, Prepared by the Arizona Statewide Legal Services Project, Evans LJ, Balantyne J, and Morris W., Attornies. Southern Arizona Legal Aid Society, Tucson, 1977.
6. Babbitt B: Medical Cost Containment Program. Department of Economic Security, Phoenix, November, 1979.
7. Braverman J: State Comprehensive/Catastrophic Health Insurance Plans: An Overview. Unpublished manuscript. Health Policy Center, Georgetown University, Washington, D.C., 1977.
8. Babbitt B: An Alternative for Providing Comprehensive Children's Health Care Program in Arizona. Department of Economic Security, Phoenix, January, 1979.
9. McCarthy D, et al: Program for Basic and Essential Health Services. House of Representative, State of Arizona, Thirty-fourth Legislature, Second Regular Session, Phoenix, 1980.



10. Breu B, Hershberger RD: I.P.A.: Doctors' best bet? *Medical World News*, March 19, 1979, pp 69-78.
11. Moore SH: Cost containment through risk sharing by primary care physicians. *N. Engl. J. Med.*, 300(24): 1359-1362, June 14, 1979.
12. Medically Underserved Area Health Services. Chapter 24, Arizona Revised Statutes 36-2351, 14, 1978, pp. 209-223.
13. Nichols A: A New Approach to Public Sector Involvement: The Health Service District. *J Publ Health Policy* 1(2):121-140, June, 1980.
14. Stay Well Insurance Tried in School District. Article on Mendocino County School District, Ukiah, California. *Tucson Daily Citizen*, Tucson, August 14, 1980, p. 14A.

## Vectorcardiography

(An Advanced Workshop)  
**April 29, 30, and May 1, 1981**  
**Scottsdale, Arizona**

*Presented by:*

**The American College of Cardiology and The Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, Arizona.**

Three-day program covering the most recent advances in the field of vectorcardiography and related areas. Major emphasis on theoretical and practical applications of the technique related to diagnostic problems, outlining its value and limitations.

**Program Director: Alberto Benchimol, M.D., FACC**, Director, Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, Arizona.

*Guest Faculty:*

**Ronald H. Selvester, M.D.**, Professor of Medicine, University of Southern California School of Medicine, Los Angeles; Chief of Cardiology and Director of Biomathematics and ECG Research Group, Rancho Las Amigos Hospital, Downey, California.

**Kenneth B. Desser, M.D., FACC**, Assistant Director, Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, Arizona.

*Credit:*

This continuing medical education offering meets the criteria for 16 credit hours in Category I of the Physician's Recognition Award of the American Medical Association. Program is acceptable for 16 Prescribed hours by the American Academy of Family Physicians.

*For more information write:*

**Registration Secretary**  
**Extramural Programs Department**  
**American College of Cardiology**  
**9111 Old Georgetown Road**  
**Bethesda, MD 20014**



## Correspondence

*Editor—*

Regarding the October 1980 issue of *Arizona Medicine*, please reread the letter from Mr. Roger W. Kaufman concerning the transfer of patient information to attorneys. I would point out something that Mr. Kaufman failed to mention; that is, attorneys are officers of the court and as such, are completely aware that they are asking the physician to violate a patient's confidentiality by transfer of records. Mr. Kaufman rightfully mentioned that the physician who complies leaves himself wide open for criticism and serious penalty. What he fails to mention is that the attorney, who is far more aware of the situation than the physician, faces no penalty—another example of the problem we face by allowing attorneys to write our laws.

In the future, I hope that physicians will make every effort to encourage other physicians to run for political office and in our own small way, attempt to reverse the public trend of placing lawyers in legislative positions—they belong in the judicial arena and not in the legislative one.

Howard H. Johnston, M.D.  
 Phoenix, Arizona

*Editor—*

You have asked for my comments concerning the October 20, 1980 letter from Dr. Johnston. They are as follows:

1. The lawyer's letter to the physician can be appropriate in some cases. The problem is that in other cases it calls for a possible violation of the patient's rights. The letter is alright when the patient has waived the physician-patient privilege or when the patient is a party in the lawsuit and is represented by counsel who has ample opportunity to object before disclosure is made. The problems arise, sometimes involving direct violation of the patient's rights, when there has been no waiver and when the patient either is not represented in the lawsuit or there is insufficient time for an attorney to object on the patient's behalf.

2. The letter has become a form. It is frequently just typed up by a secretary, signed and sent out without much thought concerning the possibility of violation of rights. The purpose of the article was to alert lawyers and physicians to the problems involved in thoughtless use of the form. For that reason, the article was submitted simultaneously to *Arizona Medicine* and to the Arizona Bar Association which has published it in the October issue of the Arizona Bar Association Journal.

3. With respect to involvement in the legislative process, I agree that it would be marvelous if more physicians became involved. Many lawyers serve at a national level. A majority of the members of Congress are lawyers. On the other hand, although it is a little-known fact, only a very small minority of the Arizona legislature is made up of lawyers. (There are more lawyers than physicians in our legislature). The great majority are neither doctors nor lawyers. The patient record problem involves primarily state law rather than federal law. There is, however, a serious problem with the federal criminal law where drug or alcohol abuse may be involved. I believe that physicians have had very little input with respect to statutes and regulations on this important subject.

Roger W. Kaufman  
 Phoenix, Arizona



## Prescription Drug Misuse, Abuse and Diversion

Did you know that Arizona was among the five leading states when it comes to the purchase of prescription drugs such as Oxycodone (e.g. Percodan) and Dihydromorphinone (e.g. Dilaudid)? I didn't!

Did you know that on prescription one Percodan tablet costs only nine cents while at the same time this tablet carries a street value of some thirteen dollars? Dilaudid costs only twenty-two cents and sells on the street for some seventeen dollars.

Where do these drugs and other drugs such as Dexedrine, Preludin, Quaalude, Ritalin and Valium come from — drugs whose resale value on the street has such a tremendous profit potential?

Is it the "script doctor" who sells prescriptions for criminal intent? Is it the addicted practitioner who writes prescriptions to support his habit? The answer to both of these questions is NO!

In the opening statement made by Mr. Lee Dogoloff, Associate Director for Drug Policy, before the conference on "Prescription Drug Misuse, Abuse and Diversion" he said, "The vast majority of problem dispensers are physicians, dentists, and pharmacists who have no criminal intent, but through a lack of knowledge, sloppy office controls, or an inability to resist outside pressures, allow controlled drugs to be excessively available and enter the illicit market."

I attended this Washington D.C. conference, held November 23 through November 25, representing the Arizona Medical Association. There were approximately 250 at this conference. In addition to representatives of medical associations there were pharmacists, law enforcement officers, representatives of the pharmaceutical industry and directors of state alcohol and drug abuse programs.

Other facts brought out in Dogoloff's opening address were as follows: Eight of the ten drugs reported by medical examiners as a cause of death are prescription drugs. He urged close cooperation between the various groups involved in this problem — cooperation that would encourage voluntary compliance with regulations. In addition, he urged educational efforts to enhance

appropriate prescribing. Preliminary efforts along these lines have already proved successful. The White House and the National Institute on Drug Abuse requested a review on the safety and usefulness of sedative/hypnotic drugs and a report on physicians' prescribing practices for these substances. As a result of this study, the Public Health Service has begun a major program to inform physicians and patients about sleep disorders and their treatment. This program is entitled "The Big Sleep." The program includes professional conferences, curriculum development for professional schools, patient information materials, and public service announcements. They believe that the message has already reached many people. Since 1977 there has been a 32 percent decline in barbiturate-related deaths. There has been a 34 percent decline in emergency room incidents involving barbiturates.

During the second and third days of the conference the participants attended workshops. These workshops described the efforts of some of the states in coming to grips with the problem. For example, New York described their triplicate prescriptions forms. Incidentally, this is not working too well. Another workshop describes New Hampshire's drug abuse warning network (DAWN) and how the information is used. This network gathers data from crisis centers, mental health centers, drug abuse programs and the emergency rooms of hospitals to identify which drugs are used most frequently in an attempted suicide. From this data educational programs are developed in order to alert the prescribing practitioner.

The state of Texas requires all persons seeking a medical license to have knowledge about the state's statutes that apply to the practice of medicine and the prescribing of drugs.

The state of California requires their problem physicians to take a course entitled, "The Ethics and Practice of Prescribing Psychoactive Drugs."

The concluding session of the conference had the moderators of all the workshops summarize the material discussed and proposed recommendations. The consensus was that a closer working relationship should be encouraged between the agencies involved. Furthermore, prescribers and dispensers of drugs should be kept informed about the effects of drugs and their potential for abuse and habituation.

Dogoloff's closing statement was a request we return to our respective states and get our members more involved.

As you can see I already have. For example, the street value of the drugs I mentioned above come from a report

### Editor

Marshall B. Block, M.D.

### Associate Editors

Kenneth Desser, M.D.  
C. Herbert Fredell, M.D.  
Warren Gorman, M.D.

### Editorial Board

Thomas E. Blttker, M.D.  
John R. Green, M.D.  
John W. Kennedy, M.D.  
William B. McGrath, M.D.  
Arthur R. Nelson, M.D.  
Charles Nugent, M.D.  
Eric Prosnitz, M.D.  
Sydney Salmon, M.D.  
Lawrence Stern, M.D.

### Managing Editor

Bruce E. Robinson

### Editorial Assistant

Joan M. Bruner



entitled "Demography of Violators Involved with the Diversion of Legal Drugs into Illegal Channels", by Slechta Moore of the Arizona Department of Public Safety. This month I will be meeting with Lewis Kurke, M.D., Assistant Director of the Arizona Department of Health Services, in order to plan further strategies for Arizona.

My best wishes to all for a good year in 1981.

John T. Clymer, M.D.  
President ArMA

## Do We Need a Hospital on Every Corner?

The rapid growth of Arizona's population is occurring predominantly around the Tucson and Phoenix metropolitan areas. This has created a problem for health planners, for as each city has grown, the population has moved progressively farther from the center of each city. This has resulted in a "push" for the development of hospital facilities near these more "outlying" areas. Within the Phoenix community there is an aggressive campaign fueled by existing hospitals to build another hospital northeast of the city. However, is population growth enough to justify the development and expense of another medical facility? In other words, do we need hospitals on every corner?

The key difficulty in arriving at how many hospital beds a community should have would appear to take into consideration, in addition to the population of the area, the commuting distance to the hospital within the area, and the existing hospital facilities.

What is the maximum amount of time a patient should have to travel to a hospital? The answer is dependent upon whether the patient has an acute medical emergency, or whether the problem is elective, i.e., scheduled surgery or visiting a friend or relative. Additional considerations should include the availability of alternative sources of transportation besides ground movement, i.e., helicopter service, airplane service. Within the Phoenix community traveling from the most outlying area to the central hospital core area by ground transportation probably does not exceed 30 minutes. In other more urban areas similar or longer transporting times are present.

The other key question is whether the existing facilities, built at great expense to all of the population, should be under-utilized in order to create another hospital facility closer to the population growth. Since most of the central core hospitals have the capability of providing primary through tertiary medical care, (i.e., simple surgical procedures through complex ones such as open heart surgery), the development of another hospital facility to do just primary care seems quite redundant. The economics of hospitals boggles the mind and the suggestion that perhaps we close one of the "meccas" in order to provide hospital beds closer to the growing population seems out of touch with reality. The building of a new \$100,000,000.00 hospital to provide all levels of care within the Phoenix area gives some idea of the amount of money that would be lost by closing such a facility.

The last, and probably the most volatile, issue in this problem relates to the emotional or non-objective considerations which are generated whenever the topic of a local hospital is raised. Every community wants to be self-sufficient and in a sense society has acquiesced to this feeling in other areas. For instance, schools are built in growing communities and closed in declining enrollment areas. Major shopping centers are built in suburban areas and downtown facilities are either closed or scaled down in scope. These two examples of society's "making life a little easier" for our burgeoning population has, I believe, resulted in similar thinking regarding hospital facilities. Economically, it is a lot cheaper to close a school or a department store than a major tertiary hospital. If the population is as concerned as they say they are with the costs of medical care today, then they should realize that developing multiple hospitals in relatively close proximity to each other will be inflationary. Hospitals are businesses, and as such will attempt to always turn a "profit." This means that fees for services at under-utilized hospitals will be increased to compensate for loss of patients to outlying medical facilities. The building of a new hospital facility in 1980-81 dollars will be much greater than that of hospitals built earlier and thus room rates and ancillary services will reflect the cost of constructing such a facility. Hospitals in the Phoenix community are already advertising for patients which gives one some idea of competition which is developing within the existing hospital structure. Adding more hospitals would seem only to further aggravate the present situation. Traveling 30 minutes is not excessive to get to a hospital facility on an elective basis. There are ample alternative forms

of transportation in an emergency setting which can be utilized to make such transfers, witness the development of multiple ambulance services and helicopter services within the Phoenix area.

In conclusion, hospitals appear to be something different than department stores or schools, and therefore should be treated differently by society and by health care planners. Although it's comforting to know that there is a hospital around the corner, can society justify the cost for such comfort in the '80's?

Marshall B. Block, M.D.  
Editor

## Genetic Counseling

Genetic counseling is a term that has been defined in numerous ways since it was introduced by Reed, (1947) A good working definition of this term is "A communication process concerning the occurrence and risks of recurrence of genetic disorders within a family." It involves a special form of communication between the members of a family and a professional who has a comprehensive understanding of genetic diseases and special training in the techniques of counseling. The counseling process is educational. The patient and her family are provided as complete an understanding as possible of all the implications of the genetic disorder. The patient then must be presented with all of the options currently available. The counselor then can aid in the decision making process in a non-directive manner. Here the traditional counseling skills require a familiarity with human psychology that can help individuals and their families make complicated decisions with which they can be comfortable.

There are three major groups of patients who are candidates for genetic counseling services: 1) parents who have recently had a child with a disease which may have genetic implications; 2) couples with a family history of hereditary disease with questions concerning the risks to their future offspring; and 3) couples requesting prenatal diagnosis based on parental age, a previous child with a chromosomal disorder or a suspected carrier status for a hereditary disease.

The essential requisites for genetic counseling are accurate diagnosis and precise information about the family pedigree. Who then performs genetic counseling? The answer to this question is: any individual with the training, skills,

and time plus the knowledge of genetic diseases. The physician responsible for patient care, either family physician or the specialist, can often fulfill the role of counselor. Within institutions, the service may be provided by an individual designated as a genetic counselor. This individual may have a doctoral or master's degree in genetics or in counseling. There are special programs which award graduate degrees in genetic counseling. Because of the vast variety of genetic diseases, a team method for the provision of genetic counseling service is best. The team is usually composed of a physician with special training in genetics, a genetic counselor, a laboratory to provide cytogenetic analysis and a social service representative.

The University of Arizona Health Sciences Center Department of Obstetrics and Gynecology genetics counseling program now includes a full-time genetics counselor and coordinator. The Perinatal section has been involved very actively in a prenatal diagnosis program for the past seven years. It has provided genetic amniocentesis service to over 1,000 patients. The cytogenetics laboratory is supervised by the Department of Pathology and works closely with the Perinatal Section. In addition to referrals for genetic amniocentesis, there have been numerous requests for counseling. The addition of the genetic counselor will enable the University to enlarge the scope of its services to the community and to assure education of students in the vital area through demonstration by this ideal model.

Lewis Shenker, M.D.  
Professor, Department of  
Obstetrics & Gynecology  
Director, Perinatal Section

Louis J. Kettel, M.D., Dean  
College of Medicine

Reed S. C.: A short history of genetic counseling. *Soc. Biol* 21:332, 1974.

(In addition to the program at the College of Medicine, genetic diagnosis and counseling as well as amniocentesis and cytogenetics are available at the Genetics Center at the Southwest Biomedical Research Institute in Tempe. ED)

## New State Auxiliary Project Teaches Good Health Habits

Many of Arizona's public school children in kindergarten through third grade will be taught good health habits in a fun and interesting way, thanks to the Arizona Medical Association Auxiliary's new state project.

The project gives interested county auxiliaries the opportunity to donate "Early Start to Good Health" kits to each school indicating an interest. The kits are produced by the American Cancer Society. Each kit contains four separate units, one for each grade level. Each unit has a musical filmstrip, a teaching guide, a wall poster for the classroom and five spirit masters for reproduction of activity sheets.

Also included in the kit is a letter from the ArMA Auxiliary to parents, asking them to review good health habits with their children using the game sheets the students bring home. The letter states that these health education kits were donated to the school because physicians and their spouses are concerned about the good health of all children.

The kindergarten unit, "My Body", uses song and dialogue to describe the different organs of the body and their functions and emphasized that the body functions best when all of its parts are cared for and healthy. The first grade unit, "My Self", shows that how people see themselves affects their physical and emotional health. The second grade unit, "My Health", covers the things that are necessary in maintaining a healthy body—good health habits, nutritional needs, exercise, and emotional outlets. The third grade unit, "My Choice", shows students that they control their lives and their futures through the decisions they make.

ArMA Auxiliary President Mrs. L. David Newman reports that teachers and school nurses, in particular, are extremely enthusiastic about the health education kits and have stated they are highly motivating. The children have enjoyed the filmstrips, their attention was held and discussion was lively.

"One of the reasons the state auxiliary was interested in implementing this project," she said, "is that comprehensive health education is needed in the Arizona school system but has been difficult to initiate. The auxiliary felt this was at least a beginning towards a coordinated health education program."

The project has been carried out by interested county auxiliaries in different

ways. Some auxiliaries purchased a kit to be placed in each school's library as a permanent health education resource. Others purchased a few kits to be taught in each school by auxiliary members. ArMA Auxiliary contacted school superintendents in the unorganized counties and will donate the "Early Start to Good Health" kits to those schools which plan to use them. By combining the total number purchased, the state auxiliary is able to make a single contribution of over \$2,500.00 to the Arizona Chapter of the American Cancer Society, allowing all the funds to be retained locally for the purchase of kits.

Mrs. Louis Newton and Mrs. Wayne Hsu head the state auxiliary's Health Education committee. They worked with Mrs. Newman in testing and evaluating the project, preparing the letters to parents and schools, also contacting school systems in unorganized counties. Mrs. Richard Collins, the auxiliary's first vice president, is health projects coordinator.





The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

### PHYSICIAN REHABILITATION COMMITTEE

The meeting of the Physician Rehabilitation Committee of the Arizona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona, on Thursday, November 13, 1980, convened at 6:10 p.m., Thomas E. Bittker, M.D., Chairman, presiding.

#### Committee's Name Change

Following a brief discussion regarding the mail poll taken of committee members regarding a change of committee name,

*It was moved and carried to recommend to the Board of Directors and the House of Delegates that the name of the Physician Rehabilitation Committee be officially changed to "Physician's Health Committee," and that an appropriate resolution be prepared which would amend the Association's bylaws in this regard for presentation to the House of Delegates during its annual meeting in May of 1981.*

#### Recovered Physician Groups

##### Zebra Club

Dr. Butler reported on the relative success they were having with the newly-established Zebra Club in the Phoenix area, in that attendance was good and there seemed to be a genuine feeling of support generated among those participating on a continual basis.

##### Anonymity Group

Dr. Young, likewise, addressed the committee regarding the Tucson Anonymity Group, indicating much the same feeling expressed by Dr. Butler, and adding that the on-call service available was now staffed by four physicians on a 24-hour basis and that they had, in fact, already received and responded to calls. Additionally, Dr. Young advised that the two groups planned a joint meeting in Casa Grande in December.

During a general discussion, it was the consensus of the membership that the establishment of such groups in the outlying rural areas should be a primary focus of the committee, in that many rural physicians, once having received treatment and returned to their area to resume practice, had no local support to

turn to should need arise. The possibility of involving each individual county society more completely was discussed, as well as considering new members from the outlying communities. In this regard, Dr. Reid expressed an interest in attempting to set up and promote an outreach program for the committee's consideration.

#### "Statement of Philosophy of Treatment

The committee reviewed with interest the Proposed Statement of Philosophy of Treatment of Alcoholism in Physicians prepared by Dr. Landess and unanimously took the following action.

*It was moved and carried that the following statement of Philosophy of Treatment of Alcoholism in Physicians be adopted by this committee and recommended to the Board of Directors for its endorsement and adoption as the official statement of philosophy of The Arizona Medical Association*

#### "Statement of Philosophy of Treatment of Alcoholism in Physicians

Physician's Health Committee of the Arizona Medical Association

The Physician's Health Committee recognizes Alcoholism to be a primary, chronic and potentially disabling disease with pathodynamic peculiarities necessitating specific and knowledgeable treatment in order to prevent advancement to the state of irreversible impairment of professional, medical, psychological and/or social function.

Therefore, it shall be the commitment of this Committee as a function of the Arizona Medical Association to address in an honest and unstigmatized manner, the victims of this insidious disease at the earliest possible recognition and to facilitate obtainment of appropriate treatment/assistance in accord with the 'Statement on Treatment of Alcoholism' of the National Council on Alcoholism and the American Medical Society on Alcoholism, 1980.

#### Statement on Treatment for Alcoholism

##### I. General Definition of Treatment

Treatment for alcoholism is the use of any planned, intentional intervention in the health, behavior, personal and/or family life of an individual suffering from alcoholism, designed to enable the affected individual to achieve and maintain sobriety, physical and mental health, and maximum functional ability.

##### II Components of Treatment

Treatment for alcoholism should include all or a combination of the following:

1. A thorough physical and psychosocial evaluation.

2. Detoxification; that is, the achievement of a state free of both alcohol and sedative drugs. Detoxification may be accomplished on an inpatient or outpatient basis, and with

#### President

John T. Clymer, M.D.

#### President-Elect

Clyde W. Kurtz, M.D.

#### Vice President

John E. Oakley, M.D.

#### Secretary

Earl J. Baker, M.D.

#### Treasurer

Neopito L. Robles, M.D.

#### Executive Director

Bruce E. Robinson

#### Publishing Committee

Marshall B. Block, M.D., Chairman

Burnell R. Brown, M.D.

C. Herbert Fredell, M.D.

Benjamin K. Harris, M.D.

Jonathan M. Levy, M.D.

William B. McGrath, M.D.



or without the use of psychoactive drugs, depending on the physical, psychological and social needs of the patient.

3. Counseling, including education on: the nature of alcoholism as a disease; the need for long-term abstinence; the need for a program of rehabilitation, including family involvement; the dangers of addiction to other drugs, and other related issues.

4. Medical treatment of the physical concomitants and complications of alcoholism, including attention to nutritional needs.

5. Psychological assistance for the patient and family through psychotherapy and/or counseling, along with involvement in self-help groups, depending on the needs and characteristics of the patient and the family. This assistance is aimed at sustaining motivation for sobriety, and helping the patient find alternative healthier ways of coping with personal, work, family and social problems without dependence on alcohol. It is aimed at helping the family develop healthier, more satisfying patterns of interaction which will in turn facilitate and reinforce the patient's sobriety. This includes help for the children of patients with alcoholism aimed also at prevention of the disease in this high-risk group.

The prescription of a deterrent drug such as disulfiram, or aversive counter-conditioning may accompany this phase of treatment as a motivational aid.

6. Treatment of any psychiatric illness which may accompany the alcoholism, such as severe depression, neurotic or psychotic conditions, or sexual disorders.

7. Referral for help with social, child care, vocational, spiritual or other associated problems to appropriate community resources.

8. Long-term follow-up, since alcoholism is a chronic disease, treatment is generally conducted as a planned program with a prolonged follow-up, or an open-ended basis.

### III. Length of Treatment

Depending on the age of the patient, the stage of illness, the degree of associated physical and psychiatric disability, and the extent of social, family, vocational and legal problems, the length of the treatment and rehabilitation process will vary widely from case to case. In all cases, however, long-term availability of social supports and medical supervision are needed because of the chronic nature of the illness and potential for relapse.

### IV. Treatment Settings

Depending on the same combination of factors cited under Length of Treatment,

the process of treatment may take place in one of a variety of settings or a combination of settings."

### AMA Fourth National Conference On the Impaired Physician

Dr. Bittker and Dr. Landess reported to the committee on their recent attendance at the AMA Fourth National Conference on the Impaired Physician held in Baltimore, Maryland, October 30-November 1, 1980. It appeared that, while such problems as insurance coverage for impaired physicians, reaching out by committees to small, rural areas, and insufficient manpower to carry the workload were being faced by most states, Arizona was, with its two active recovered physician groups, far ahead of most states in that area.

At this point, the committee discussed at great length the problems touched upon during the conference and the possible avenues which it might follow in an effort to solve these problems within Arizona, in addition to others presently facing the committee in its attempt to reach physicians throughout the state. It was determined to investigate funding sources which might provide the staff necessary in order to do more thorough case follow-ups; to develop a program to allow greater contact with medical institutions, interns, residents and students; to offer members services to county auxiliaries as guest speakers for groups indicating an interest in committee activities; and to obtain, if possible, additional committee members comprised of physicians from outlying areas within the state and recovered physicians.

The committee was also informed of a recently produced film, "My Brother's Keeper," and it was agreed that the film might be a very beneficial teaching aid for committee members. Dr. Landess agreed to check into the matter and report back to the committee regarding the film's availability.

### Training for New Members

The chairman briefly touched on the subject of training for new members, requesting Dr. Judith Reid to prepare for discussion at the next meeting of the committee, her thoughts as to the committee's functions and the assistance which might be provided to new members to enable their active and involved participation.

### Correspondence

Letter from Dr. Bittker to Dr. Elliott Heiman as President of the Arizona Psychiatric Society dated November 3, 1980, agreeing to serve as liaison to the APS and requesting Dr. Heiman serve as an ex-officio representative on the Physician's Health Committee. *Received.*

## LEGISLATIVE COMMITTEE

Meeting of the Legislative Committee of the Arizona Medical Association held November 15, 1980, at 810 West Bethany Home Road, Phoenix, convened at 1:12 p.m., Richard O. Flynn, M.D., Chairman, presiding.

### Definition Of Terms

The definition of terms used to establish the Committee's position on legislation were reviewed and discussed. These terms will be used again as stated.

### Legislative Review

A copy of the final status report of the 33rd legislature was passed out to each member of the committee. Dr. Flynn informed the committee that many of the bills not enacted last year could be expected to be reintroduced during the next legislative session. The final status report of last year's legislative activity was received for information.

### Specialty Society Legislative Program

### Lobbying

Dr. Flynn informed the committee that the Board of Directors during meeting held August 9, 1980, reviewed materials submitted by the Arizona Ophthalmological Society concerning ArMA's lobbying activities as it pertained to the Optometric Bill providing for the use of pharmaceutical agents. After review of the material provided and discussion with the leadership of the Ophthalmological Society, the Board suggests that the Legislative Committee consider meeting with leaders of the various specialty societies to review ArMA's lobbying activities. Considerable discussion ensued concerning the lobbying activity during the last few days of legislative sessions as it pertained to the Optometric Bill and the appropriateness thereof. It was noted that both the Ophthalmological Society and ArMA actively opposed adoption of the Optometric legislation. However, it was enacted into law without the Governor's signature. *Received for information only.*

### Specialty Society Recommendations

Dr. Daehler informed the committee that the Arizona Psychiatric Society intends to re-introduce H.B. 2333, Search and Seizure and wishes the support of ArMA. This legislation, if adopted, would prescribe procedures for searching records of a clergyman, priest, attorney and physicians office. It was determined that this subject should be reviewed by counsel and a report submitted to the next committee meeting.

Dr. Daehler also asked the Association to review Senate 3029 in the current session of congress as it creates dual standards of psychiatry vs. medicine. In



all legislation which there are dual standards, the American Psychiatric Association requests assistance from AMA and the respective state Associations in eliminating separate standards for psychiatry.

#### **Legislative Activities**

##### **Advertising**

Gary Barnett briefed the committee on S.B. 1062 which provided for ArMA's amendment to the Medical Practice Act concerning advertising, hearing officer, and Continued Medical Education (CME). S.B. 1062 was unfavorably amended during the last session and it was questioned whether ArMA should re-introduce the bill during the next session.

*It was moved and carried to actively support the re-introduction and enactment of legislation amending the Medical Practice Act regarding advertising, hearing officer, and CME as in S.B. 1062 of the 2nd Regular Session of the 33rd Legislature.*

##### **Home Deliveries - Back-up Service & Immunity**

The committee considered correspondence received from the Maternal and Child Health Care Committee concerning maternity care from an Advisory Task Force on Maternity Care by the Department of Health Services as follows:

"2.9 Targeted to: Hospital, emergency medical services, physicians, Arizona Department of Health Services

Provide back-up services for home birth couples to include facilities for prenatal care and services if problems arise. Rescue squads need to be oriented to needs of home birth couples.

Home birth is actively discouraged by physicians thus prenatal care is often denied. Patients often encounter negative attitudes by hospital staff when emergency services are required for problems that arise during home birth. And yet women using the services of a licensed midwife at home must, according to the 'Licensing of Midwifery,' be seen at least once during the last trimester by a licensed physician or other practitioner operating under the supervision of a licensed physician. Also, according to R9-16-205-C, 'The midwife shall have formal arrangements prior to each delivery for back-up medical care for the mother and infant.'"

The committee basically agreed with the Task Force's recommendation, with two exceptions:

"2.9 The committee agrees with this recommendation, with the substitution of the words 'Emergency Services' in place of 'Rescue Squads.' Additionally, this committee will recommend that the Legislative Committee of the Arizona Medical Association explore with the legislature a law to establish back-up

services on a statewide basis.

The committee's feeling was that back-up services should be established on a statewide basis and not simply an area basic throughout the state, but that such back-up services should be able to be provided without liability to those physicians, hospitals, etc., performing the same, and the committee, therefore, requests your committee to explore such types of legislation in order that the medical profession would be protected should this, in fact, become law."

There was discussion of the committee's recommendation, however, *no action taken.*

##### **Indigent Health Care (Medicaid)**

Dr. James L. Schamadan briefed the committee on Indigent Health Care problems noting that Arizona is the only state in the union that does not participate in the medicaid problem. The committee was informed that the Governor's "Medical Cost Containment Program" of last year will be re-introduced with some slight modification (H.B. 2307). It is also expected that legislation will be introduced by Mr. Morales providing for a program for basic and essential health services somewhat the same as was in H.B. 2400 of the last session. The Association of Counties is also actively involved in writing legislation concerning health care for the indigent. Also the Community Action Association and the Arizona Hospital Association are developing proposals to be considered during the next Legislative session. It was suggested that the Association continue its position of actively studying the various proposals. *The report was received for information only.*

##### **Department of Health Services**

Dr. Suzanne Dandoy, Director of Department of Health Services, informed the committee that the following subjects have been considered priority legislation for the Department during the next session. Although copies of the bills are not yet available for distribution, the Department of Health Services would ask for the Association's support at the appropriate time.

##### **Certificate of Need**

Dr. Dandoy supplied the committee with a comparison of the Federal and Arizona Certificate of Need requirements. Although Arizona amended its Certificate of Need law during the last legislative session, it did not address the Federal requirements in nine different areas. It is therefore anticipated that legislation will be introduced by the executive branch in order to protect a 50 million dollar penalty to the state.

##### **Child Restraint Law**

Dr. Dandoy informed the committee that the Department of Health Services will introduce legislation providing for child seat belt restraints. It was noted that the Association introduced legislation last year (S.B. 2213) providing for child seat belt restraints and it was hoped that the Association would support the Department in this endeavor during the next session. *Received for information only.*

##### **Motorcycle Helmet Law**

Dr. Sandoy briefed the committee on the need for a motorcycle helmet law. She stated that the Department was in the midst of putting together statistics which would greatly indicate the need for re-establishing the helmet law for motorcycles in Arizona. It was suggested that ArMA support the Department of Health Services in this legislative activity. *Received for information only.*

##### **Mandatory Immunization**

Although Arizona has a law on the books providing for mandatory immunization, it has been determined that it is unenforceable. The Department of Health Services is currently reviewing the effectiveness of our immunization bill and may ask the Association to support legislation giving it greater strength.

##### **Emergency Medical Services**

Dr. Dandoy informed the committee that Emergency Medical Services currently resides in two different state agencies - the Department of Public Safety and the Department of Health Services. As a result of the Governor's conference on Emergency Medical Services, legislation is being developed to consolidate Emergency Medical Services into a single agency, the Department of Health Services. When the legislation is available for review, Dr. Dandoy suggests the Association take an active roll in its passage. *Received for information only.*

##### **Other Business**

##### **Work Shop**

Interest was expressed in a workshop to be conducted for members of the committee who are not familiar with the legislature to learn more about it activities, terminology, and how it operates. The Chairman indicated he would look into the possibility of a workshop to be held on the same day of our next meeting which will be toward the end of January.



## AD HOC LONG RANGE PLANNING COMMITTEE

The meeting of the Ad Hoc Long Range Planning Committee of the Association held at 810 W. Bethany Home Rd., Phoenix, Arizona, on Monday, November 17, 1980, convened at 6:31 p.m., John E. Oakley, M.D., Chairman, presiding.

### Goals and Objectives of Long Range Plan

The committee reviewed and discussed at great length the materials solicited from other state associations, together with the proposals of various committee members.

It was determined that those members who, thus far, had not submitted any proposed goals and objectives would be urged to do so; that the proposed goals and objectives of the committee and the Association staff would be consolidated and circulated to the committee members for review prior to the next meeting of the committee.

It was the consensus of the membership that once firm goals had been set by it a workshop should be developed, to be comprised of participants drawn from the leadership of the various fields of medicine, whereby, the objectives to accomplish the established goals could be determined.

### Next Meeting

The next meeting of the committee will be held on Friday, December 19, 1980, at 6:30 p.m., to be held in conjunction with the meeting of the Executive Committee already scheduled for that date and time.

## EXECUTIVE COMMITTEE

A meeting of the Executive Committee of the Arizona Medical Association, Inc., held at 810 W. Bethany Home Rd., Phoenix, Arizona, on Friday, November 21, 1980, a quorum being present, convened at 6:41 p.m., John T. Clymer, M.D., President and Chairman, presiding.

### WPPA - October Board of Directors' Meeting

Bruce Robinson reported on the recent meeting of the Board of Directors of the Western Physicians Purchasing Association which was held October 9th in Helena, Montana, advising that, as of September, 1980, there were no outstanding obligations, except for those sums still owing to the various state associations; that the present members in WPPA, of which Arizona still has the highest number, were now being billed for 1981 dues and if this billing was successful in maintaining membership, a new Executive Director, a Mr. Bill

Upton from Ogden, would be employed to operate the WPPA on a part-time basis from his existing Ogden location. Following a lengthy discussion as to the feasibility of continuing to promote WPPA to the Association membership, it was determined that John F. Kahle, M.D., President of the WPPA, and Mr. Bill Upton, if available, be invited to attend the January Board of Directors' meeting to present a detailed report on the financial stability as well as future outlook for the organization.

### Resolution 1-80 Appointment of Committee

The committee reviewed Resolution 1-80 adopted by the House of Delegates on April 25, 1980, calling for the President to appoint a committee to review the bylaw changes which would be required and the impact of such changes upon State and County Societies should an elimination of County-State unified membership occur. Dr. Clymer advised the members that he had determined to name the members of the Executive Committee as the committee to act under Resolution 1-80, with Clyde W. Kurtz, M.D., to serve as Chairman of that committee. In initial discussions along these lines, it was a general consensus that, in order to develop and prepare an in-depth report to present to the House of Delegates in May of 1981, the committee would transmit to the county societies an outline of the changes which would be required in the bylaws should county-state unified membership be eliminated, and then solicit, by individual hearing, each county's feelings regarding the effect and implementation of such changes. Subsequent to discussion, the following action was taken.

*It was moved and carried approving the President's appointment of the members of the Executive Committee, with Clyde W. Kurtz, M.D. acting as Chairman, to serve as the committee designated by the House of Delegates under Resolution 1-80 to determine bylaw changes, policy decisions and impact of those changes involved in an elimination of County-State unified membership, and to act in a timely manner so as to have a final report prepared to present to the House of Delegates during its meeting in May of 1981.*

### CON & ArHA

Mr. Robinson updated the committee on the Arizona Hospital Association's continuing efforts regarding the Certificate of Need as it relates to physicians' offices and the fact that, although it was still hopeful that some agreement might be arrived at between ArMA and ArHA, the Joint Committee had, to date, been unable to find a time

convenient for all of its members to again meet and discuss the matter.

### Arizona Medicine

Letter of J. Reichert, M.D. dated 9/24/80 relating to publications in *Arizona Medicine* together with Dr. Clymer's reply dated 10/6/80. Received.

### Arizona Republic Article

Letter to the editor by Mary L. Hanlon of Phoenix, published under heading, "Don't Overlook Speakers" - July 13, 1980 edition of the *Arizona Republic*. Received.

### New Services for ArMA Members

Edward Jacobson, Esq., presented to and reviewed for the committee his letter dated November 13, 1980, setting forth various matters which might be considered for the benefit of the ArMA membership. The committee discussed the items at great length and determined that each of the three subdivisions of that letter should be referred to a specific committee for further study and review and, thereafter, took the following action:

*It was moved and carried that portions of legal counsel's letter dated November 13, 1980, be referred for further study and review, as follows:*

1. *Developing new services which might be offered by ArMA to its members - to the Medical Economics Committee.*

2. *Developing programs designed for physicians other than those engaged in traditional private practice - to the Ad Hoc Long Range Planning committee.*

3. *Developing the issues involved in destroying County-State unified membership - to the Executive committee acting as the committee under Resolution 1-80.*

### Video Tape Library Project

Bruce Robinson reported to the committee on the results of his investigation into the establishment of the video tape library to be established and maintained by the Association for ArMA members, giving a breakdown of available sources, as well as initial and updating cost of equipment, tapes, etc., and the committee took the following action:

*It was moved and carried that all information available regarding a video tape library be referred to the Medical Economics Committee for further follow-up study and review as to indication of member interest in this type of material being provided, as well as a cost analysis to determine fees and charges which might be made for viewing of the tapes in an effort to minimize the initial investment which the Association would be required to make.*

Along these same lines, Misty Coumbe was requested to obtain information



regarding the library of this nature presently maintained at the Maricopa County Medical Society.

**Correspondence**

Dr. Clymer advised the committee that a letter of thanks had been received from Suzanne E. Dandoy, M.D., for her standing guest invitation to meetings of the Executive Committee, expressing the feeling that it had strengthened the relationship between the Department of Health Services and ArMA and the hope that this might continue following the appointment of the new director of DHS.

**Other Business**

**AMA Medical Staff Leadership Seminar**  
The committee reviewed a request for cosponsorship of an AMA Medical Staff Leadership Seminar in Phoenix on April 3 and 4.

*It was moved and carried to approve the co-sponsorship of an AMA Medical Staff Leadership Seminar to be held at the Association's Headquarters in Phoenix, Arizona, on April 3 and 4, 1981, and that the Association immediately proceed to finalize the plans and begin the promotion for the holding of such program.*

**BOMEX Space**

Mr. Robinson informed the committee that the Association had received a definite indication of interest from a local PSRO, "NAMES," in renting the building space earlier occupied by BOMEX and that officers of that organization were to meet with Mr. Robinson on Saturday, November 25, 1980, to view the premises and further discuss the matter.



## *Future Medical Meetings*

The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
Phoenix Psychiatric Council  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program, (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott  
Yuma Regional Medical Center

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

**Fundamentals of Flexible Sigmoidoscopy and Colon & Rectal Surgery**

February 6-7, 1981. Registry Resort, Scottsdale, Arizona. Sponsor: Good Samaritan Hospital. Contact: Office of CME, Good Samaritan Hospital, 1033 East McDowell Road, Phoenix, AZ 85006. Approved for 16 hours of category 1 credit.

**Advanced Cardiac Life Support Program (Provider)**

February 10 & 11, 1981. Arizona Medical Association, Phoenix. Sponsor: ACEP, Arizona Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Turner, Arizona Medical Association, 810 W. Bethany Home Rd., Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

**The New Technologies for Cardiac Evaluation and Treatment**

February 8-11, 1981, Las Vegas, Nevada. Sponsor: Northwestern University Medical School and the University of Nevada School of Medicine. Contact: Patricia McClure, Northwestern University Medical School, Continuing Education, Ward 1-004, 301 E. Chicago Ave., Chicago, IL 60611.

**Rural Emergency Medicine "The First 60 Minutes"**

February 12 & 13, 1981. Doubletree Inn, Scottsdale, AZ. Sponsor: Arizona Chapter American College of Emergency Physicians, AZ Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ACEP, Executive Secretary, 810 W. Bethany Home Rd., Phoenix, AZ 85013. Approved for 13½ hours of category 1 credit.

**Seventh Annual Frontiers in Ophthalmology**

February 12-14, 1981. The Arizona Biltmore Resort. Sponsor: St. Luke's Hospital Medical Center. Contact: Christine Campbell, Seminar Coordinator, St. Luke's Hospital, 525 N. 18th St., Phoenix, Arizona (602) 258-7373, Ext. 311. Approved for 15 hours of category 1 credit.

**Nephrology Revisited**

February 12-14, 1981. Arizona Health Sciences Center, Tucson, Arizona. Sponsor: University of Arizona College of Medicine, Departments of Medicine, Surgery and Office of Continuing Medical Education. Contact: Christy Snow, Office of CME, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 11 hours of category 1 credit.

**Physical Diagnosis Skills**

February 14, 1981. U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of CME and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 6 hours of category 1 credit.

**Third Annual Practical Counseling Technique Workshop for the Primary Physician**

February 14-21, 1981. Lion Square Lodge, Vail, Colorado. Sponsors: Institute for Human Relationship and Development and Colorado Academy of Family Physicians. Contact: John C. Faul, M.D., 5290 E. Yale Circle, Ste 200, Denver, Co. 80222.

**FEBRUARY**

**Obstetrics in the 80's**

February 5 & 6, 1981. Scottsdale Hilton Hotel, Scottsdale, Arizona. Sponsor: St. Joseph's Hospital and Medical Center and The Cybele Society. Contact: Program Director, Ruthie H. Dearing, M.H.S.A., Director of Education, The cybele Society (509) 838-2332. Approved for 9 hours of category 1 credit.

**7th Annual Meeting Freestanding Ambulatory Surgical Association**

February 5-7, 1981. Doubletree Inn, Scottsdale, AZ. Sponsor: Arizona Medical Assn. & the Society of Freestanding Ambulatory Surgical Association. Contact: Brian Dawson, M.D., 1040 E. McDowell Road, Phoenix, AZ 85006. Approved for 16 hours of category 1 credit.



## *Comings & Goings*

It has been announced that MacDonald Wood was elected to the Board of Governors of the American College of Surgeons as Governor-at-Large for Arizona. He was elected at the annual meeting of Fellows on October 23, 1980, in Atlanta, Georgia, for a term ending with the conclusion of the 1983 Clinical Congress.



### **Third Annual International Cataract Surgery Symposium**

February 16-18, 1981. La Posada Resort Hotel, Scottsdale, Arizona. Sponsor: The Eye Foundation (A.F.O.R.E.) Contact: Ronald W. Barnet, M.D., Medical Director, 421 N. 18th Street, Ste 105, Phoenix, AZ 85006. Approved for 12 to 22 hours of category 1 credit.

### **International Cardiovascular Congress III**

February 16-18, 1981. Scottsdale Center for the Arts, Scottsdale. Sponsor: Arizona Heart Institute. Contact: International Cardiovascular Congress III, Arizona Heart Institute, P.O. Box 10,000, Phoenix, AZ 85064. Approved for 18 hours of category 1 credit.

### **Update in Ophthalmologic Surgery for the Practicing Physician**

February 17, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor: Desert Samaritan Hospital. Contact: Office of CME, Desert Samaritan Hospital, 1400 South Dobson Rd., Mesa, AZ 85020. Approved for hour per hour category one credit.

### **32nd Annual Western Institute on Epilepsy "Epilepsy in Childhood and Adolescence"**

February 17-20, 1981. Reno, Nevada. Sponsor: University of Nevada-Reno, Reno, Nevada. Contact: Continuing Education, College Inn, University of Nevada-Reno, Reno, NV 89557.

### **Advanced Cardiac Life Support Program (Provider)**

February 18-20, 1981. Arizona Medical Association. Sponsor: ACEP, Arizona Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Turner, Arizona Medical Association, 810 West Bethany Home Rd., Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

### **Endocrinology 1981**

February 19 & 20, 1981. Arizona Biltmore Hotel, Phoenix. Sponsor: St Joseph's Hospital and Medical Center and the Flinn Foundation. Contact: Daniel S. Duick, M.D., Dept. of IM, St. Joseph's Hospital and Medical Center, P.O. Box 2071, Phoenix, AZ 85001.

### **Emergency Care Update-1981**

February 19-21, 1981. U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of CME and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour category 1 credit.

### **Ninth Annual Taos Lung Disease Symposium**

February 20-22, 1981. Holiday Inn, Taos, New Mexico. Sponsor: New Mexico Chapter of the American Thoracic Society. Contact: New Mexico Chapter of the American Thoracic Society, 216 Truman, NE, Albuquerque, New Mexico 87108.

### **EKG Interpretation and Arrhythmia Management**

February 20-21, 1981. Hyatt Regency Hotel, Phoenix, AZ. Sponsor: International Medical Education Corp. Contact: Stephen Mattingly, Vice President, International Medical Education Corp., 64 Inverness Dr. East, Englewood, Co. 80112. Approved for 13 hours of category 1 credit.

### **Structural Family Therapy Series**

February 20-21, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Center and Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Community Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

### **Fourth Annual Postgraduate Course**

#### **Advances in Obstetrics and Gynecology**

February 25-27, 1981. Scottsdale Hilton Hotel, Scottsdale, Arizona. Sponsor: Maricopa County General Hospital, Dept. of OB/GYN, and Phoenix OB/GYN Society. Contact: Secretary, Phoenix OB/GYN Society, 333 E. Virginia, Ste 222, Phoenix, AZ 85004. (602) 257-9218. Approved for 13 hours of category 1 credit.

### **Personal Instruction Course in Cataract Surgery**

February 25-28, 1981. The Eye Foundation, Phoenix, AZ. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 N. 18th Street, Suite 105, Phoenix, AZ. Approved for hour per hour category 1 credit.

### **Prophylactic Antibiotics in Surgery**

February 27, 1981. Boswell Memorial Hospital, Sun City, AZ. Sponsor and Contact: Office of CME, Walter O. Boswell Memorial Hospital, 10401 Thunderbird, Sun City, AZ. Approved for hour per hour category 1 credit.

### **14th Annual Southwestern Clinical Pharmacy**

#### **Clinical Aspects of Psychotherapeutics**

February 27-March 1, 1981. Ramada Inn, Tucson, AZ. Sponsor: U of A College of Pharmacy. Contact: Jack R. Arndt, Ph.D., College of Pharmacy, U of A, Tucson, AZ 85721. Approved for 8 hours of category 1 credit.

## **MARCH**

### **Treatment of Rectal & Anal Disease.**

March 3, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor: Desert Samaritan Hospital. Contact: Office of CME, Desert Samaritan Hospital, 1400 South Dobson Rd., Mesa, AZ 85202. Approved for hour per hour category 1 credit.

### **5th Annual Valley of the Sun Dermatologic Symposium**

March 4-9, 1981. Scottsdale Hilton, Scottsdale. Sponsor: American Academy of Dermatology. Contact: Phoenix, Dermatologic Society, Jeffrey M. Grant, M.D., 13000 N. 103rd. Ave., Ste 50, Sun City, AZ 85351. Approved for 12 hours of category 1 credit.

### **Crisis and Emergency Pediatrics**

March 5-8, 1981. Doubletree Inn, Tucson. Sponsor: U of A College of Medicine. Contact: Hugh C. Thompson, M.D., Pediatrics, U of A College of Medicine, Tucson, AZ 85724. Approved for 17 hours of category 1 credit.

### **Gynecologic Endocrinology**

March 6-8, 1981. The Adams Hotel, Phoenix. Sponsor: U of A College of Medicine and Center for Continuing Professional Education. Contact: David Pent, M.D., P.O. Box 33772, Phoenix, AZ 85067. Approved for 14 hours of category 1 credit.

### **Advances in Internal Medicine III:**

#### **Focus on Immunology**

March 6-8, 1981. Granada Royale, Scottsdale, Arizona. Sponsor: Maricopa County General Hospital and Department of Medicine. Contact: Chairman, Department of Medicine. MCGH, 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 17 hours of category 1 credit.

### **Annual Meeting—Society of Head and Neck Surgeons**

#### **The American Society For Head and Neck Surgery**

March 8-11, 1981. The Hyatt Regency Hotel, Phoenix, Arizona. Sponsor: American Society of Head and Neck Surgery. Contact: Gabriel F. de Freitas, M.D., Local Arrangements Chairman, Suite 101, 1901 E. Thomas Road, Phoenix, AZ 85016.

### **Advanced Cardiac Life Support Program (Provider)**

March 10-12, 1981. Arizona Medical Association, Phoenix. Sponsor: ACEP, Arizona Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, Arizona Medical Association, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

### **Personal Instruction Course in Cataract Surgery**

March 11-14 and 25-28. The Eye Foundation, Phoenix, AZ. Sponsor and Contact: The Eye Foundation, 421 N. 18th Street, Suite 105, Phoenix, AZ 85006. Approved for hour per hour category 1 credit.

### **Chronic Obstructive Pulmonary Disease**

March 12, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, AZ. 85372. Approved for 1 hours of category 1 credit.

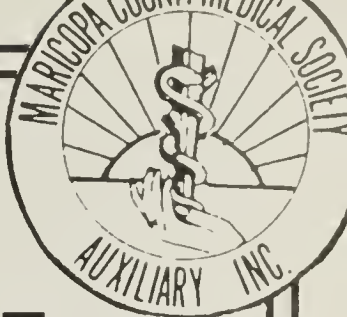
### **Seventh Annual Maricopa County General Hospital Urological Seminar**

March 14 & 15, 1981. The Registry Resort, Scottsdale, AZ. Sponsor: Maricopa County General Hospital. Contact: James H. McDonald, M.D., Chief of Urology Service, MCGH, 2601 E. Roosevelt St., Phoenix, AZ 85008. Approved for 14 hours of category 1 credit.

### **Third Annual Symposium on Current Concepts in the Management of Acute and Chronic Pain**

March 14 & 15, 1981. Camelback Inn, Phoenix. Sponsor: Maricopa County General Hospital. Contact: George Wallace, M.D., Program Director. MCGH, 2601 E. Roosevelt, Phoenix, AZ 85006.





# RAPE, ASSAULT, INCEST and FAMILY VIOLENCE

## A FREE Seminar on Physical and Sexual Abuse

*Sponsored by the Maricopa County Medical Society Auxiliary*

**Saturday, January 31, 1981**

**8 a.m. — 4:30 p.m.**

**Phoenix Civic Plaza Convention Center  
225 East Adams/Phoenix, Arizona**

This seminar will provide a platform for the frank discussion of physical and sexual abuse. Techniques of self-protection will be demonstrated. Representatives from local social agencies will be available for free confidential referral services. Don't wait until conditions are critical. Learn about physical assault — what it is, how to avoid it, and where to turn for assistance. Battered spouses and teen-agers urged to attend.

### Program Schedule

|            |                                                                                  |            |                                                                                            |
|------------|----------------------------------------------------------------------------------|------------|--------------------------------------------------------------------------------------------|
| 8:00 a.m.  | <b>Registration</b>                                                              | 12:55 p.m. | <b>Introduction of Panel</b><br>Linda Alvarez, KPNX-TV                                     |
| 8:25 a.m.  | <b>Opening Remarks</b>                                                           |            |                                                                                            |
| 8:45 a.m.  | <b>Introduction of Panel</b><br>Mary Jo West, KOOL-TV                            |            | <b>Child Abuse</b><br>Kipp Charlton, M.D.<br>Ms. Talley Dunn, Crisis Nursery               |
|            | <b>Rape</b><br>Ms. Cynthia Pace<br>Center Against Sexual Assault<br>(CASA)       |            | <b>Incest</b><br>Ms. Carol Fowler<br>Ms. Ellen Cherrill, CASA                              |
|            | <b>Rape Examination</b><br>Martin F. Freedman, M.D.                              | 2:30 p.m.  | Break                                                                                      |
|            | <b>Film</b>                                                                      | 2:40 p.m.  | <b>Battered Spouses</b><br>Ms. Marilyn Bidnick<br>Friends of the Family                    |
| 10:15 a.m. | Break                                                                            |            | <b>Panel Discussion</b><br>Questions & Answers                                             |
| 10:30 a.m. | <b>Legal Recourse</b><br>Maricopa County Attorney<br>Victim Witness Program      | 3:10 p.m.  | <b>Self-Protection &amp; Prevention</b><br>Lt. Warren Settles<br>Phoenix Police Department |
| 11:15 a.m. | <b>Panel Discussion -</b><br>Questions and Answers                               | 3:30 p.m.  |                                                                                            |
| 11:45 a.m. | <b>Lunch</b><br><i>All panelists available for<br/>confidential consultation</i> |            |                                                                                            |

- **Free** registration and materials
- Attend one or all sessions
- **Free** child care - *reservations necessary*

- **Translator** for **deaf** persons present all day
- Sack lunch available - *reservations necessary*
- All-day parking, City Garage - \$2.00 maximum

**CALL (602) 241-4666**  
**FOR INFORMATION AND RESERVATIONS FOR LUNCH AND CHILD CARE**

**OPEN TO THE PUBLIC — NO CHARGE**

### **3rd Annual Conference on Adjuvant Therapy of Cancer**

March 18-21, 1981. Tucson Convention Center, Tucson. Sponsor: U of A College of Medicine. Contact: Cancer Center Division, Arizona Health Sciences Center, Tucson, AZ 85724. Approved for 25 hours of category 1 credit.

### **Structural Family Therapy Series**

March 20 & 21, 1980. Scottsdale Camelback Hospital, Scottsdale. Sponsor: Philadelphia Child Guidance Center and Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Community Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category one credit.

### **Ski CME Program**

March 21-26, 1981. Vail, Colorado. Sponsor: Desert Samaritan Hospital. Contact: L.A. Rosati, M.D., CME Committee, Dester Samaritan Hospital, 1400 S. Dobson Rd., Mesa, AZ. Approved for 16 hours of category 1 credit.

### **Common Office Psychiatric Problems**

March 25, 1981. Walter O. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

### **Advanced Cardiac Life Support Program (Recertification)**

March 26, 1981. Arizona Medical Association, Phoenix. Sponsor: ACEP, Arizona Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Tuner, Arizona Medical Association, 810 West Bethany Home Rd., Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

### **Arthroscopic Surgery of the Knee Seminar**

March 26-28, 1981. The Alamos Resort, Scottsdale, Arizona. Sponsor: Scottsdale Memorial Hospital. Contact: Program Chairman, 7300 Fourth Street, Suite 102, Scottsdale, AZ 85251. (602) 994-8797. Approved for 22 hours of category 1 credit.

### **Prophylactic Antibodies in Surgery**

March 27, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, Office of CME, 10401 Thunderbird Blvd., Sun City, AZ 85372. Approved for 1 hour of category credit.

## **APRIL**

### **Fourth Annual Arizona Emergency Medicine Symposium**

April 22-24, 1981. Safari Convention Center, Scottsdale, Arizona. Sponsor: American College of Emergency Physicians, Arizona Emergency Medical Systems, Inc., The Phoenix Chapter of Emergency Department Nurses Assn. and Arizona EMT Assn. Contact: Sherry Krentz, RN., Chairman, Arizona Emergency Medicine Symposium, AEMS, 301 W. Osborn Rd., Ste 112, Phoenix, AZ 85013.

### **Vectorcardiography (An Advanced Workshop)**

April 29, 30 & May 1, 1981. Sponsor: American College of Cardiology and Good Samaritan Hospital Institute for Cardiovascular Diseases. Contact: Registration Secretary, Extramural Programs Department, American College of Cardiology, 9111 Old Georgetown Rd., Bethesda, MD 20014.

## **MONTHLY OR WEEKLY**

### **Shrine Medics Meeting**

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

### **Office Psychiatry for the Primary Provider**

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

### **Counter Transference Group**

Weekly, Thurs. 8-10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

### **Monthly Meeting of Tucson Radiologists**

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

### **Pediatric Grand Rounds**

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

### **Review of Forensic Pathology Current Case, Special Topics**

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.

## **ARIZONA HEART INSTITUTE**

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

### **Clinical Conference Cardiovascular Medicine**

Third Tues., 5:15 p.m., second floor classroom

## **ARIZONA STATE HOSPITAL**

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

### **A.S.H. Psychiatric Grand Rounds**

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm., Contact: Dr. Conger & Staff

### **Clinical-Pathological Conference**

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

### **Medical Grand Rounds**

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.

## **BARROW NEUROLOGICAL INSTITUTE**

### **Medical Education**

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### **Neurology Teaching Conference**

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf. Room.

### **Neurosurgical Morbidity Conference**

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### **Neuro-ophthalmology Conference**

Tuesdays, 7:30 a.m. in 8th floor neurology conference room.

### **Spinal Injury Conference**

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conf. Rm.—a multidisciplinary review of admission by neurosurgeons, orthopedists, and rehabilitation specialists

### **Neuro-ophthalmology Conference.**

Weekly, 7:30 a.m., 8th floor conference Rm.

### **Neuropathology of Gross Specimens Conference**

Thursday, 7:30-8:30 a.m. in the Morgue.

### **Neurology-Neurosurgical**

Fridays, 8-9 a.m., First Floor Conference Rm.

### **Neuropathology or Neuroradiology Conferences**

Friday, 9 a.m., Neuropathology in Neuropathology Conference Rm., Neuroradiology in First Floor Conference Rm.

### **Neurorehabilitation Conference**

Tuesdays, noon, 8th Floor Conference Rm.

### **Neurosurgical Journal Club**

Saturdays, 9-11 a.m. in Eighth Floor Conference Rm.

## **WALTER O. BOSWELL MEMORIAL HOSPITAL**

10401 Thunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED.D., Director of Education.

### **Medical Department Continuing Medical Education**

4th Wednesday, 12 Noon, C119. May, July, Sept. & Nov.

### **Tumor Board**

Last Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept. & Nov.

### **Surgical Department CME**

4th Friday, 7 A.M., Educ. Center Classrooms I & II. Contact: Brian Updegraff, M.D.



"Joint Life is the insurance of the '70's"

## Doctor, HBA Life's

# JOINT LIFE INSURANCE insures two people with only one policy, one low premium

with these advantages:

**BUSINESS INSURANCE:** Two doctors, partners or associates in a professional corporation, will find this plan a low-cost way to provide funds if one of the two dies. It also may be used by husband and wife or father and son to provide funds to pay off special debts or for any of the other purposes for which life insurance may be used.

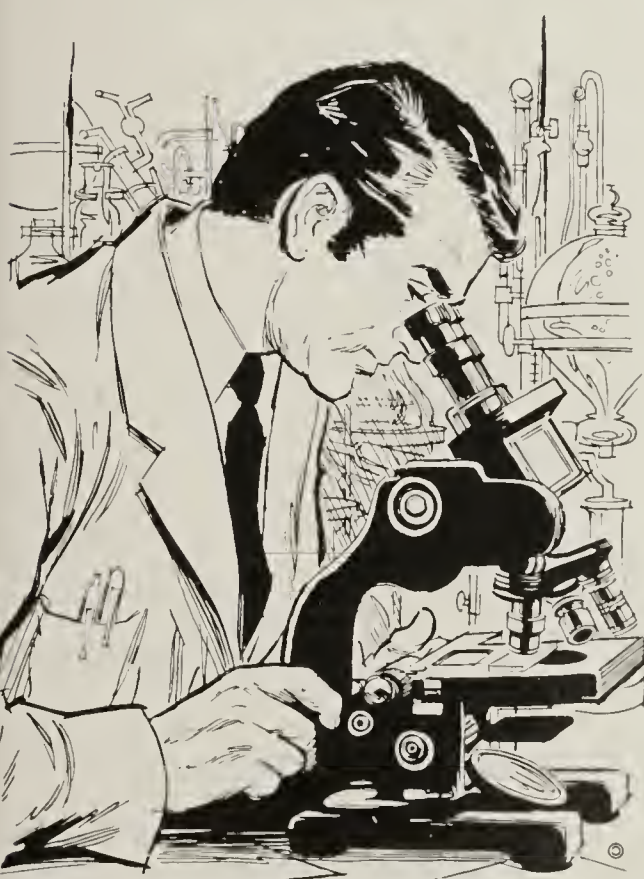
**LOWER INSURANCE AGE:** Often, one insured is somewhat younger than the other. The joint equal age can take years off the age of the older insured. The policy provides for the payment of the face amount upon the death of the first of the two insureds to die.

**GUARANTEES SURVIVOR INSURABILITY:** The surviving insured, within 90 days and prior to age 70, is guaranteed the right to purchase life insurance. If the surviving insured doesn't exercise this right and dies during this 90-day period, the conversion would automatically be made by the Company and the face amount, less the conversion premium, would be paid to his beneficiary.

**DOUBLE FOR SIMULTANEOUS DEATH:** If both insureds should die simultaneously, the sum insured upon their deaths would be paid to their beneficiaries.

**CONVERTIBLE TO SINGLE LIFE:** The Joint Life Insurance may also be converted to single insurance prior to the older insured's 60th birthday. The amount converted can be all on one life or the other or divided between the two as long as each does not take less than \$1,000 of life insurance.

An HBA Life Agent would be glad to discuss it further at your convenience.



**THE HBA LIFE**  
INSURANCE COMPANY

1337 N. FIRST ST. • PHOENIX • 258-4885

**A Local Company Serving the West Since 1944**



## CAMELBACK HOSPITAL

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr., M.D.

**Clinical Conference**  
3rd Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

1400 South Dobson Road, Mesa, Arizona, Contact: L.A. Rosati, M.D. Approved for category 1 credit.

### CME Programs

Weekly Tuesday, 7 p.m., Cafeteria-West End.

### Clinical Conference - Dept. of Medicine

Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch, Grande Rm.

### OB/GYN Medical Staff Conference

Weekly, Monday, 12:30-1:30 p.m. Grande Rm.

### Pediatric Case Conference

2nd. Friday, 12:30 p.m., Grande 2

## DOCTORS HOSPITAL

1747 East Thomas Road, Phoenix, Arizona 86016 Contact: Medical Staff Secretary for additional information.

**Physicians Continuing Education Program**  
1st Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

1400 N. Wilmont Road, Tucson, AZ 85712. Contact: Eric G. Ramsay, M.D. Approved for category 1 credit.

### Family Practice Department Meeting

1st Monday, 12 Noon, Contact: R. Grossman, M.D.

## GOOD SAMARITAN HOSPITAL

1033 East McDowell Rd., Phoenix, AZ Contact: W. J. Howard, M.D. Approved for category 1 credit.

### Anatomical Path. & Cytology

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf Rm.

### Gynecological Section Conference

2nd Monday, 12:30-1:30 p.m., West Rm

### Monday Noon Conference

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### Mortality/Morbidity, Surgery Comm.

2nd Monday, 11:30-2:00 p.m., West Rm.

### Obstetrical Section Conference

1st Monday, 12:30-1:30 p.m., West Rm.

### Pulmonary Disease Grand Rounds

Weekly, 12:00-1:00 p.m., D-5 North

### Family Practice Conference

Weekly Tuesday, 12:00-1:00 p.m., Fam. Practice Conf. Rm.

### Pediatric Grand Rounds

3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul Bergeson, M.D.

### Surgical Grand Rounds

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### Clinical Cancer Forum

3rd Wednesday, 12:00-1:00 p.m., West Rm, Contact: John A. Bruner, M.D.

### Combined Cardiovascular & Family Practice Conf.

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5 North.

### Dr. Fenger's Lecture

Weekly, Wed., 12:30-1:30 p.m., R-2 Conf. Rm.

### Learning Disabilities

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

### OB/GYN Dept. Review & Statistics

Weekly, 12:30-3:00 p.m., OB/GYN Conf. Rm.

### PM & R Grand Rounds

2st. & 4rd. Wed., 12:00-1:00 p.m., R-2 Conf. Rm.

### Gynecological Pathology

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf. Rm.

### GI Radiology Conference

1st Thursday, 12:00-1:00 p.m., F151, Radiology Conf. Rm.

### Phoenix Ultrasound Soc. Meeting.

Medical Education Building, Contact: Dr. Ben Ora

### Neurology Grand Rounds

Weekly Thursday, 9:00-10:00 a.m., D-5 North.

### Tumor Treatment Planning Conf.

2nd & 4th Thursdays, 12:00-1:00 p.m., F151 Radiology

### Joint Tumor Gyn Conference

2nd Friday, 12:30-1:30 p.m., West Rm.

### Kinesiology

Weekly Friday, 4:00-5:00 p.m., R-2 Conf Rm.

### Medical Grand Rounds

Weekly Friday, 8:00-9:00 a.m., West Rm.

### Neuropathy Conference

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

### Psychiatry Grand Rounds

Weekly Friday, 11:30-1:00 p.m., East Rm.

### PM & R Journal Club

Alt. Fridays, 12:00-1:00 p.m., R-2 Conf. Rm.

## KINO COMMUNITY HOSPITAL, (THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact: Eric C. Ramsay, M.D., Approved for Category 1 credit.

### Attending's Hour

5th Monday, 12:30 p.m., Contact: J. Goldberger, M.D.

### Infectious Disease Conference

3rd Monday, 12:30 p.m., Contact: Barry Friedman

### Ophthalmology Conference

1st Monday, 12:30 p.m., Contact: Bruce Gillers, M.D.

### Psychiatric Conference

2nd & 4th Mondays, Contact: J. Santiago, M.D.

### Surgical Conference

Weekly Mondays, Contact: R. Fischer, M.D.

### Cardiology Conference

4th Tuesday, 12:30 p.m., Contact: B. Phibbs, M.D.

### Clinical Pharmacology Conference

5th Tuesday, 12:30 p.m., Contact: M. Katz, Clinical Pharm.

### Neurology Conference

1st & 3rd. Tuesday, 12:30 p.m., Contact: J. Laguna, M.D.

### Radiology Conference

2nd Tuesday, 12:30 p.m., Contact: M. Baker, M.D.

### Medical Surgical Grand Rounds

2nd Wed., 12:30 p.m., Contact: Chief Medical Resident

### Medical Conference

1st Wed, 12:30 p.m., Contact: Chief Medical Resident

### Cardiology Conference

1st Thursday, 12:30 p.m., Contact: B. Phibbs, M.D.

### Endocrine Conference

2nd Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

### GI Conference

4th Thursday, 12:30 p.m., Contact: C. Kanun, M.D.

### Mortality & Morbidity Conference

3rd. Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

### OB/GYN Dept. Meeting

2nd Thursday, 2 p.m., Contact J. Wurzel, M.D.

### OB/GYN Pathology Conference

Weekly, Thursday, except 2nd, Contact: J. Wurzel, M.D.

### OB/GYN Sonograph/X-ray Conference

4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

### Clinical Pathology

5th Thursday, 12:30 p.m., Contact: J. Fleishman, M.D.

### Renal Conference

1st Friday, 12:30 p.m., Contact: T. Pence, M.D.

### Hematology Conference

2nd & 4th Friday, Contact: S. Ketchel, M.D.

### Rheumatology Conference

3rd Friday, 12:30 p.m., Contact: J. Goldberger, M.D.

### Chest Conference

5th Friday, 12:30 p.m., Contact: D. Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008  
**Continuing Medical Education Program**  
Every other Wednesday, 7-8 a.m.

### Clinical Conferences

2nd & 4th Wednesday, 12-1 p.m., Medical Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008. Contact: Leonard Tamsky, M.D.

### Medicine Conference

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

### Chest Surgery Conference

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

### Hematology Conference

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

### OB/GYN Dept. Grand Rounds

Weekly Tuesday, 12 Noon, Santa Cruz Room

### Obstetrical Problem Conference

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

### Orthopedic Conference

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

### Pediatric Grand Rounds

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

### Urology Discharge Planning Conference

Weekly, 11:30 a.m., Station 42

### Hand Surgery Conference

Weekly Wed, a.m., Santa Cruz Rm.

### Neurosurgery Discharge Planning

Weekly Wed., 1:30 p.m., Station 42.

### OB/Neonatology Seminar

Weekly, Wed. 7:30 a.m., Yavapai Rm.

### Clinical Psychiatric Conference

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

### Surgery Conference

Weekly Wed., 7-8 a.m., Surgical Dept.

### Current Concepts in Medicine & Surgery

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.



# In G.I. therapy



## Adjunctive Librax®

Each capsule contains  
5 mg chlordiazepoxide HCl  
and 2.5 mg clidinium Br

### antianxiety/antisecretory/antispasmodic

### for adjunctive therapy of duodenal ulcer\* and irritable bowel syndrome\*

## Librax®

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:

"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.

Final classification of the less-than-effective indications requires further investigation

**Contraindications:** Glaucoma, prostatic hypertrophy, benign bladder neck obstruction, hypersensitivity to chlordiazepoxide HCl and/or clidinium Bromide.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addic-

tion-prone individuals or those who might increase dosage, withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.

As with all anticholinergics, inhibition of lactation may occur.

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug

and oral anticoagulants, causal relationship not established.

**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction, changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets

ROCHE

Roche Products, Inc  
Manati, Puerto Rico 00701





**Acute pain  
is no laughing matter.**

## **The first prescription for the first days of acute pain Empirin® $\bar{c}$ Codeine #3**

Each tablet contains: aspirin, 325 mg; plus codeine phosphate, 30 mg, (Warning — may be habit-forming). 

**For the millions of patients who need the potency of aspirin and codeine for their acute pain.**

The pain of fractures, strains, sprains, burns and wounds is at its peak during the first three to four days following trauma. The potent action of Empirin  $\bar{c}$  Codeine begins to work within 15 minutes of oral administration, an important advantage during this acute pain period. Empirin  $\bar{c}$  Codeine has unique bi-level action to attack pain at two critical points: peripherally at the site of injury and centrally at the site of pain awareness.

For the most effective dosage in treating acute pain, begin with... two tablets of Empirin  $\bar{c}$  Codeine #2 or #3, every four hours. Titrate downward as pain subsides.

### **EMPIRIN® with Codeine**

**DESCRIPTION:** Each tablet contains aspirin (acetylsalicylic acid) 325 mg plus codeine phosphate in one of the following strengths: No. 2 — 15 mg, No. 3 — 30 mg, and No. 4 — 60 mg. (Warning — may be habit-forming.) 

**CONTRAINDICATIONS:** Hypersensitivity to aspirin or codeine.

#### **WARNINGS:**

**Drug dependence:** Empirin with Codeine can produce drug dependence of the morphine type and, therefore, has the potential for being abused. Psychic dependence, physical dependence, and tolerance may develop upon repeated administration of this drug and it should be prescribed and administered with the same degree of caution appropriate to the use of other oral, narcotic-containing medications. Like other narcotic-containing medications, the drug is subject to the Federal Controlled Substances Act.

**Use in ambulatory patients:** Empirin with Codeine may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery. The patient using this drug should be cautioned accordingly.

**Interaction with other central nervous system (CNS) depressants:** Patients receiving other narcotic analgesics, general anesthetics, phenothiazines, other tranquilizers, sedative-hypnotics, or other CNS depressants (including alcohol) concomitantly with Empirin with Codeine may exhibit an additive CNS depression. When such combined therapy is contemplated, the dose of one or both agents should be reduced.

**Use in pregnancy:** Safe use in pregnancy has not been established relative to possible adverse effects on fetal development. Therefore, Empirin with Codeine should not be used in pregnant women unless, in the judgment of the physician, the potential benefits outweigh the possible hazards.

#### **PRECAUTIONS:**

**Head injury and increased intracranial pressure:** The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions or a pre-existing increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the clinical course of patients with head injuries.

**Acute abdominal conditions:** The administration of Empirin with Codeine or other narcotics may obscure the diagnosis or clinical course in patients with acute abdominal conditions.

**Allergic:** Precautions should be taken in administering salicylates to persons with known allergies; patients with nasal polyps are more likely to be hypersensitive to aspirin.

**Special risk patients:** Empirin with Codeine should be given with caution to certain patients such as the elderly or debilitated, and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, prostatic hypertrophy or urethral stricture, peptic ulcer, or coagulation disorders.

**ADVERSE REACTIONS:** The most frequently observed adverse reactions to codeine include light-headedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients and some of these adverse reactions may be alleviated if the patient lies down. Other adverse reactions include euphoria, dysphoria, constipation, and pruritus.

The most frequently observed reactions to aspirin include headache, vertigo, ringing in the ears, mental confusion, drowsiness, sweating, thirst, nausea, and vomiting. Occasional patients experience gastric irritation and bleeding with aspirin. Some patients are unable to take salicylates without developing nausea and vomiting. Hypersensitivity may be manifested by a skin rash or even an anaphylactic reaction. With these exceptions, most of the side effects occur after repeated administration of large doses.

**DOSAGE AND ADMINISTRATION:** Dosage should be adjusted according to the severity of the pain and the response of the patient. It may occasionally be necessary to exceed the usual dosage recommended below in cases of more severe pain or in those patients who have become tolerant to the analgesic effect of narcotics. Empirin with Codeine is given orally. The usual adult dose for Empirin with Codeine No. 2 and No. 3 is one or two tablets every four hours as required. The usual adult dose for Empirin with Codeine No. 4 is one tablet every four hours as required.

**DRUG INTERACTIONS:** The CNS depressant effects of Empirin with Codeine may be additive with that of other CNS depressants. See WARNINGS.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709



**Cardiology Conference**

Weekly Thurs., 2 p.m., Santa Cruz Rm.

**OB/GYN Resident Conference**

Weekly Thurs., 12 p.m., Yavapai Rm.

**GYN Endocrine Seminar**

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

**OB/GYN Surgical Pathology Conf.**

Weekly Friday, 7:30 a.m., Yavapai Rm.

**Orthopedic X-Ray Conference**

Weekly Friday, 7:30 a.m., Santa Cruz Rm.

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.

Contact: Leonard M. Lapenson, M.D.,

Approved for category 1 credit.

**Clinical Conferences**

1st & 3rd Tuesdays, 12 noon, 5th floor auditorium.

**CPC or Medical-Surgical Forum**

4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.

Contact: Leland L. Fairbanks, M.D.,

Approved for category 1 credit.

**Pediatric Grand Rounds**

1st Tuesday, 7:30-8:30 a.m., Contact: D. Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**

Wed. Weekly, 8:00 a.m.

**Otolaryngology Grand Rounds**

4th Wednesday, 4-5 p.m., Conference Rm. A, Contact: N. Wendell Tood, M.D.

**Family Practice/Emergency Room Teaching Conference**

Thursday Weekly, 7:30-8:30 p.m., Conf. Rm. A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact: George Scharf, M.D. Approved for category 1 credit.

**Monthly Medical Education Seminar**

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

**Clinical Conferences**

Weekly Tuesday, 12:30 p.m., Kiva Conference Rm.

**Tumor Board Conference**

Weekly Friday, 12 p.m., Kiva Conf. Rm. Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251.

Contact: W. S. Williams, M.D., Approved for category 1 credit.

**Family Practice Conference**

1st Monday, 12:30 p.m., Doctors' Lounge

**Morbidity & Mortality Conference**

2nd Monday, 12:30 p.m., Doctors' Lounge

**Neurology & Neurosurgery Conference**

3rd Monday, 12:30 p.m., Doctors' Lounge

**Internal Medicine-Clinical Pathological Conference**

4th Monday, 12:30 p.m., Doctors' Lounge

**Pulmonary Medicine Conference**

1st Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiology Conference**

2nd Tuesday 12:30 p.m., Doctors' Lounge

**Surgery Departmental Meeting**

3rd Tuesday, 12:15 p.m., Doctors' Lounge

**Thoracic & Vascular Surgery Conference**

4th Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiopulmonary Conference**

4th Tuesday, 12:30 p.m., Doctors' Lounge

**OB/GYN Dept. Meeting & Conf.**

2nd Wed., 12:30 p.m., Doctors' Lounge

**Trauma Conference**

3rd Thurs, 12:30 p.m., Doctors' Lounge

**Tumor Conference**

4th Thursday, 12:30 p.m., Doctors' Lounge

**Psychiatry & Behavioral Sciences Conference**

1st Friday, 12:30 p.m., Doctors' Lounge

**GI Medical—Surgical-Radiological Conf.**

2nd Friday, 12:30 p.m., Doctors' Lounge

**Urology-Oncology**

Last Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85013.

Contact: Joseph C. White, M.D.

**OB/GYN Section Conference**

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor Conf. Rm.

**Genetics Conference**

Weekly Monday, 12:30 p.m., Pediatric Department.

**Pediatric Rounds**

Weekly Monday, Wed. & Friday, 10:30 a.m., Pediatric Department.

**Pediatric Grand Rounds**

4th Tuesday, 7:30-8:30 a.m., Contact: J. Kipp Charlton, M.D.

**ECG Conference**

Weekly Tuesday, 12:30 p.m., Pediatric Department.

**Medical Grand Rounds**

Weekly Wednesday, 8 a.m., 1st Floor Conf. Room.

**Visiting Professor Formal Presentation**

Weekly Thursday, 8 a.m., PIMC

**Visiting Professor Informal Presentation**

Weekly Thursday, 9:30 a.m., 1st floor Conf. Rm.

**Visiting Professor Formal Presentation**

Weekly Thursday, 12:30 p.m., PIMC

**Nephrology Conference**

Weekly Fridays, 12:30 p.m., Pediatric Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact: Eric G. Ramsay, M.D. Approved for Category 1 credit.

**Family Practice Department Meeting**

3rd Tuesday, 12 p.m., Contact: Wm. Moteforte.

**Ophthalmology Morbidity/Mortality Conf.**

4th Tuesday, 12:15 p.m., Contact: Kim Sowards.

**Current Concepts in Medicine**

Weekly, Tuesday, 12 p.m., Auditorium.

**Hematology-Oncology Conference**

Last Wednesday, 12:15-1:15 p.m., Contact: S. Salmon, M.D.

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact: Gerald L. Hansbro, M.D.

**Cardiac Conference**

Weekly Monday, 12:15 p.m., Auditorium

**Surgery Conference**

1st Tuesday, 12:15 p.m., Auditorium

**Emergency Medicine Conference**

1st Wednesday, 12:15 p.m., Auditorium

**Cardiovascular-Thoracic Record Review**

3rd Wednesday, 12:15 p.m., Auditorium

**Psychiatry Conference**

3rd Thursday, 7 a.m., Auditorium

**Combined Medical General Practice Conference**

1st Friday, 12:15 p.m., Auditorium

**Toxicology Grand Rounds**

2nd Friday, 7:30 a.m., Auditorium

**Ophthalmology Conference**

1st Saturday, 8:30 a.m., Auditorium.

## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W. St. Mary's Road, Tucson, AZ 85703. Contact: see below.

**Monthly Specialty Conference-Dept. of Surgery**

1st Monday, 7:30 a.m., Century Rm. A., Contact: Med. Staff Office.

**Grand Rounds: Medical Surgical, Family Practice, Pathology, Radiology**

Weekly Thursday

**Emergency Medicine Lectures**

Weekly Thursday, 8 a.m., Century Room A.

**Mental Health Update**

1st Friday, 11:30-1:00 p.m., Century Rm. A.

**Cardiology Conference**

Weekly Friday, 8:00-9:00 a.m., Century Rm., Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.

Contact: Eric G. Ramsay, M.D. Approved for Category 1 credit.

**Cardiology Conference**

Weekly Monday, except last, 12 Noon, Contact: J. Fernandez, M.D.

**Dermatology Conference**

4th Monday, 5:00 p.m., Contact: R. Miller, M.D.

**Endocrinology Conference**

Last Monday, 12 p.m., Contact M. Parker, M.D.

**Perinatal Conference**

2nd Monday, 7:30 p.m., Contact: J. Lohman, M.D.

**Chest Conference**

3rd Tuesday, 12 noon, Contact: William Nevin, M.D.

**Hematology Conference**

4th Tuesday, 12 Noon, Contact: M. Boxer, M.D.

**Infectious Disease Conference**

2nd Tuesday, 12 noon, Contact: B. Friedman, M.D.

**Nephrology Conference**

1st Tuesday, 12 noon, Contact: Dr. Seltzer.

# ...and neither are you!



**You're Not  
Alone  
Anymore**

Now, the family doctor can get professional assistance for helping clients recognize and do something about alcoholism.

Concerned persons close to the alcoholic are learning about St. Luke's new, exclusive, Family Intervention Program by way of dramatic television announcements placed around high-rated programs at critical times of the day.

Families and friends are being urged to call this number for help: 258-7373, Ext. 506.

You are invited to use the same number for referral, assistance or information concerning treatment of the disease, alcoholism.



*St. Luke's Hospital  
Medical Center*

Write: Victoria Sterling  
Family Intervention Program  
525 N. 18th St., Phoenix, AZ. 85006

ANNOUNCEMENTS • LETTERHEADS • ENVELOPES • OFFICE FORMS • PATIENT HISTORY FORMS • BUSINESS CARDS •



## THE ARIZONA MEDICAL ASSOCIATION

*Offers*

### SUBSTANTIAL SAVINGS TO MEMBERS

*On*

PRINTING • ADDRESSING • MAILING  
SERVICES

*Provided In Our Shop*

Call Or Write "Press" Preston  
Printing Department  
810 West Bethany Home Road  
Phoenix, Arizona 85013

*Tucson Members:*  
Ask Tucson Operator for  
Enterprise 265

*Phoenix Members:*  
Telephone 246-8901

*All Other Members:*  
Call Collect 246-8901

PATIENT INFORMATION FORMS

BUSINESS CARDS • RX FORMS

RX FORMS • PATIENT INFORMATION FORMS • PATIENT HISTORY FORMS

ANNOUNCEMENTS • LETTERHEADS • ENVELOPES • OFFICE FORMS • BUSINESS CARDS • RX FORMS



**Orthopedic Conference**

1st Tuesday, 8:00 p.m., Contact: Jay Katz, M.D.

**Pediatric Grand Rounds**

1st & 3rd Tuesday, 12:30 p.m., Contact: Dr. Lightner.

**Cardiac Cath. Conference**

2nd & 4th Wednesday, 5:15 p.m., Contact: L. Buckels, M.D.

**Clinical Pathology Conference**

Last Wednesday, 8:00 a.m., Contact: Dr. Fuchs.

**Family Practice Meeting**

2nd Wednesday, 12:30 p.m., Jan., April, July, & Oct. Contact: C. Mangelsdorf, M.D.

**Medical Conference**

Weekly Wednesday, 8:00 a.m., Contact: M. Fuchs, M.D.

**Neurology-Neurosurgery Conference**

Weekly Wednesday, 12 noon, Contact: H. W. Buschsbaum, M.D.

**Dermatology Conference**

1st Thursday, 12 noon, Contact: R. Friedman, M.D.

**Neuroradiology Conference**

Weekly Thursday, 5:00 p.m., Contact: N. Komar, M.D.

**Tumor Conference**

Weekly Thursday, 12 noon, Contact: Dr. Hastings.

**G—I Conference**

Weekly Friday, 12 noon, Contact: C. Krone, M.D.

**Interhospital Nuclear Medicine Conference**

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts, M.D.

**OBGYN Conference**

1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

**OBGYN Pathology Conference**

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

**Surgical Department Conference**

Weekly Saturday, 7:30 a.m., Contact: Dr. Hastings, TMC.

**Surgical Grand Rounds**

Weekly Saturday, 9:00 a.m., UAHSC-Room 5403, Contact: Dr. Norton.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix, AZ 85012. Contact: Alfred Heibrunn, M.D. Approved for Category 1 credit.

**GI X-Ray Clinical Correlation Conf.**

1st & 3rd Monday, 1 p.m., Rm. C435, Contact: Drs. Sanowski, & Jarczyk.

**Medical/Surgical GI Conference**

1st & 3rd Mondays, 3 p.m., Rm. 3134, Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext 493.

**GI Pathology Conf.**

2nd. & 4th Monday, 1 p.m., Path Conf. Rm, Contact: Dr. Sanowski..

**Vascular Conference**

2nd Monday, 3 p.m., Room 3134, Dr. Cintora, Ext 419

**Surgery/Pathology Conference & Tissue Review**

1st & 3rd Tuesday, 4 p.m., Room 2128, Contact: Dr. Landard

**GI Grand Rounds**

Weekly Tuesday, 1 p.m., Contact: Drs. Sanowski, Kozarek & Partyka

**Cancer Symposium**

Weekly Wed., 1 p.m., T-5, Contact: Dr. Byrne, Ext. 426.

**Housestaff Pulmonary Disease Teaching Conf.**

Weekly Wed., 3-4 p.m., Contact: Dr. Rohwedder, Ext. 388.

**Medical Surgical Chest Conference**

1st & 3rd Thursday, Contact: Dr. Rohwedder or Dr. Gill.

**Cardiology Conference**

2nd Thursday, 1 p.m., Rm. T-5.

**Medical Service Grand Rounds**

Weekly Friday, 11 a.m., Contact: Dr. Zeller

**GI Resident Conference**

Weekly Friday, 1:00 p.m., D446, Contact: Drs. Grobe, Phelps, Sanowski and Kozarek.

**Surgical Journal Review & Videotape Session**

Weekly 1 p.m., Room 3134.

## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed below. Approved for category 1 credit.

**Medical Lectures**

1st & 2nd Thursday & Weekly, Fridays, 1:30 p.m., Bldg. 28. Contact: J. W. Fitzharris, D.O.

**GI Rounds**

Third Thursday, 10 a.m.-2:30 P.M., Contact: J. W. Fitzharris, D.O.

**Grand Rounds**

Weekly Thursdays, 11 a.m., Bldg. 107. Contact: J. W. Fitzharris, D.O.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723. Contacts listed below. Approved for category 1 credit.

**Medical Surgical Chest Conference**

Weekly Tuesday, 2 p.m., Contact: Dr. Young

**Medical Grand Rounds**

Weekly Wed., 12-1:00 p.m., VA Hospital Staff Conf. Rm. & (AHSC), Contact: Jay Smith, M.D.

**Surgical Grand Rounds**

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

**Endocrinology Seminar**

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm. N318, Contact: Dept. of Internal Medicine.

**Grand Rounds**

Weekly, Thursday, 11 a.m., Bldg. 107, Contact: J. Fitzharris, D.O.

**Vascular Radiology, Interesting Case Conf.**

Weekly Thursday, 12:00 noon.

**Neurology Grand Rounds**

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

**Radiology Conference**

1st Tuesday, 7:00 a.m.

**Operation Outreach**

2nd Tuesday, 6:30 p.m.

**Pathology Conference**

4th Tuesday, 7:00 a.m.

**Operation Outreach**

2nd Wednesday, 7:00 a.m.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson, AZ 85724. Robert M. Anderson, M.D., Dir. of CME. Contact: See below. Approved for category 1 credit.

**Anesthesiology Board Review Conference**

2nd & 4th Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contacts: Dr. Vaughn & Kryc.

**Anesthesiology Basic/Clinical Sciences Lectures**

Weekly Thursday, 4-5 p.m., Room 5403

**Anesthesiology Case Discussion**

Weekly Wed., 7:00 a.m., AHSC, Dining Rm. C&D.

**Anesthesiology Resident Presentation**

1st Monday, 4-5 p.m., AHSC Dining Room, C&D, Contacts: Drs. Otto & Zehngut.

**Cancer Center Tumor Board Seminar**

3rd Tuesday, Monthly, 12-1 p.m., HSC Auditorium, Contact: Cancer Center

**Cardiac Catheterization Conference**

Weekly Friday, 4:00 p.m., Contact: Dr. Temkin.

**Cardiology Research Conference**

Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

**Tucson Cardiovascular Society**

1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

**Cerebrovascular Disease Conference**

Weekly Monday, 5:00-6:00 p.m., AHSC, Rm. 5505, Contact: Dr. W. Moore

**Clinical Immunology, Allergy****& Rheumatology Rounds**

Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

**Cerebrovascular Disease Conference**

Mondays, 5-6 p.m., Weekly, Rm. 5505. Contact: Wesly Moore, M.D., Depts. of Surgery, Neurology & Radiology.

**Dermatology Rounds**

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

**Endocrinology Seminar**

Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

**GI Pathology Conference**

4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

**GI Radiology Conference**

2nd. & 4th Mondays, 7:30 a.m., AHSC, Contact: Dr. T. Hunter

**Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact: Dr. Manning

**Hematology-Oncology Clinical Conference**

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact: S. Salmon, M.D., Dept. of Internal Medicine.

**Medical Grand Rounds**

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

**Morbidity/Mortality In E.M.**

2nd Tuesday, 9:00 a.m., AHSC, Contacts: Drs. Hughes & Alcorn

**Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

**Neuropathology Review Conference**

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

**Neuroradiology Conference**

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

**Neuromuscular Journal Conference**

2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.



### Neuropathology Case Review

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

### Neurosciences Seminar

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

### Nuclear Medicine

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

### Ophthalmology Grand Rounds

Weekly Friday, 8 a.m., AHSC, Contact: Dr. H. Cross

### Ophthalmology Retina & Fluoro. Conference

Weekly Thursday, 5:00 p.m., AHSC Contact: Dr. H. Cross

### Orthopedic Rounds

Saturday, 8:00 a.m., Contact: Dr. Peltier.

### Pain Conference

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

### Pathology Seminar

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

### Tucson Pathologist Conference

1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

### Pediatric Grand Rounds

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

### Pediatric Problem Patient Conference

Weekly Wed., 8:00 a.m., Contact Dr. Walson

### Pediatric Research Forum

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

### Pediatric Specialty Conference

Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

### Psychiatric Grand Rounds

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

### Psychiatric Monthly Case Conference

2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

### Pulmonary Rounds

Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

### Chest Radiology

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

### Neuroradiology Teaching Conference

Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

### Radiation Oncology Planning Conference

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

### Radiology Interesting Case Conference

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

### Gastrointestinal Radiology

Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

### Radiology-Rheumatology Conference

Weekly Thursday, 7:45 a.m., UAHSC, Library

Rm.1535C.

### Uroradiology (Genitourinary Radiology)

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

### Renal Pathology Conference

1st & 3rd Thurs., 11:30 a.m., Contact: Dr. Nagle.

### Residents Noon Conference

Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact: Dr. A. Greensher.

### Resident's Conference

Wednesday, weekly 5-6 p.m., Diag. Radiology Conf. Rm.

### Surgical Morbidity & Mortality Conference

Weekly Wed., 8:00 a.m., Contact: Dr. Wangenstein.

### Joint Thyroid Conference

1st & 3rd Wed., Contact: S. C. Werner, M.D.

### Trauma Conference

Every Thursday, 4-5 p.m. UAHSC, Rm. 5505.

### Ward Grand Rounds - Trauma

Weekly Tuesday, 8:00 a.m., Contact: Dr. M. Silverstein.

### Toxicology Conference

Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes

### Section.

### Tucson Ultrasonography Group

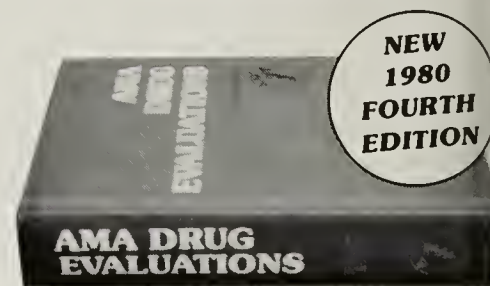
Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

### General Urology Conference

Weekly Tuesday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach.

# NOW AVAILABLE!

**The most useful  
and definitive  
book on drug  
therapy!**



Completely reorganized, updated, and expanded, AMA DE/4 is the most inclusive, comprehensive, and objective drug compendium ever assembled covering virtually every significant drug prescribed in the U.S. today. Over 1,300 drugs are evaluated, including 57 new drug listings.

**An indispensable, clinically-oriented  
guide for prescribing, dispensing, or  
administering drugs**

Organized by therapeutic category, each chapter begins with an introductory overview, followed by detailed evaluations for individual drugs. AMA DE/4 gives information on dosage, actions and uses, and contraindications—plus a listing for hundreds of additional mixtures and proprietary preparations.

### THE authoritative guide

You can be confident the information is accurate and clinically pertinent because it was compiled by the AMA Drug Department working with the American Society for Pharmacology and Therapeutics and a consulting panel of more than 300 distinguished physicians and other health care professionals.

### Order AMA DE/4 today!

Order Dept., OP-075, AMA  
P.O. Box 821, Monroe, WI 53566

Please send me \_\_\_\_\_ copy(ies) of **AMA Drug Evaluations, 4th Edition**, OP-075. \$48 per copy (Residents: \$24). Enclosed is my check, payable to AMA, for \$\_\_\_\_\_. Payment must accompany order. If Resident, indicate hospital below.

Please print

SJ

Name \_\_\_\_\_

Hospital \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State/Zip \_\_\_\_\_



# Practice what we teach.

Today there are over 31 million men, women and children suffering from the many forms of arthritis and related rheumatic diseases. And there just aren't enough trained rheumatologists to help them.

That's why arthritis sufferers need your help.

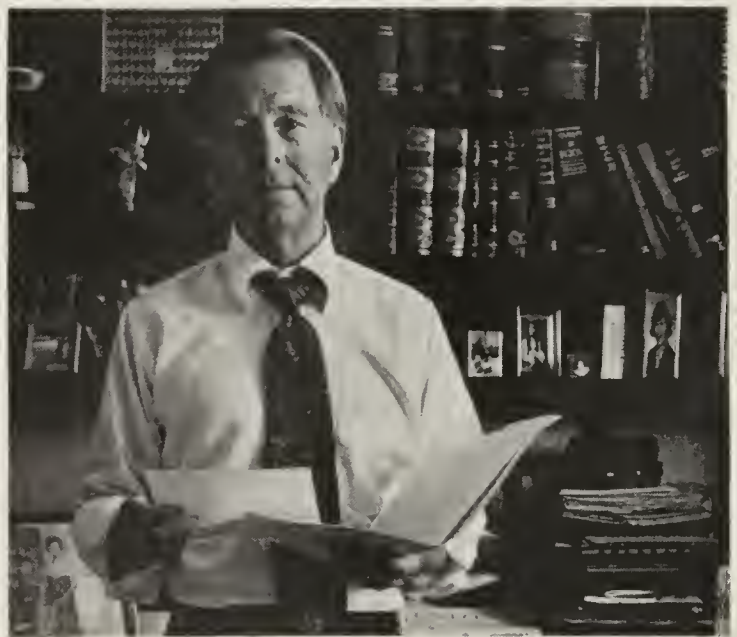
They must depend heavily on the family practitioner for better diagnosis, more effective patient treatment.

Contact your local Arthritis Foundation chapter for the latest information on arthritis. This includes continuing educational seminars by leading rheumatologists, scientific meetings, "outreach" programs — as well as the "Bulletin on the Rheumatic Diseases," "Arthritis and Rheumatism Journal," "Primer on the Rheumatic

Diseases," audio cassettes and other professional materials. Free disease handbooks and medication pamphlets are also available to patients.

Please. Let us help your practice with what we teach.

The Arthritis Foundation helps doctors help.

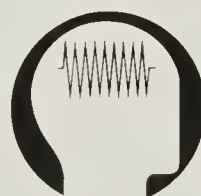


# Before Your Patient's Headache Problems Become Your Problem...

## Contact The Headache Group of the Southwest A Multidisciplinary Approach to the Diagnosis and Treatment of Headaches

G. SCOTT TYLER, M.D. / HAROLD E. McNEELY, Ph.D.

1402 North Miller Road Suite F-5  
Scottsdale, Arizona 85257  
Telephone: (602) 941-5353



**The Headache  
Group of the  
Southwest**

### YOU WORKED HARD



FOR THAT  
DIPLOMA..

why not have it  
laminated?

it will last a lifetime....

### THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.  
7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully  
bound books. Choose from 30 different  
colors of durable Library Buckram

**\$13.50 per volume, (name imprint.75)**

**\$15.00 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

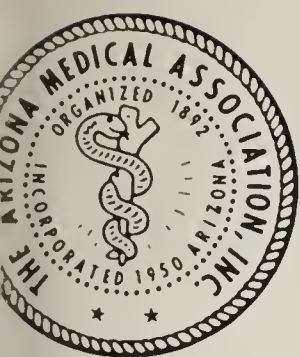
**Free local pickup and delivery on 10 volumes  
or more**

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338





# THE ARIZONA MEDICAL ASSOCIATION, INC.

## "SECURITY PACKAGE"

The key word in any insurance program is security. ArMA's Board of Directors, working with the Medical Economics Committee and ArMA staff, has sponsored carefully designed insurance programs placed with excellent companies. The set-up of the over-all administration and local servicing assures you of prompt and courteous service in the unhappy event that you or your family should have a claim. Programs with service you can count on: **That's Security.**

The **Dean S. Davidson Insurance Agency, Inc.**, with over 40 years of experience in all lines of insurance (including several Arizona associations), and offices in Phoenix and Tucson, provides local service for all members. Should you need assistance at any time, trained personnel are available by phone or in person to assure efficient, thorough handling of your insurance programs.

The **Southern California Agency** has been working with ArMA for almost 30 years. Its affiliate, **Health Agencies of the West, Inc.**, coordinates the full administration (marketing, underwriting, billing, and claims services) of all insurance programs. They are specialists in professional association group insurance, who provide the finishing touches to our "SECURITY PACKAGE".

### Term Life Insurance

underwritten by  
Fireman's Fund  
American Life Insurance Company



### Defendant's Reimbursement Insurance



underwritten by  
National Casualty Company

### Spouse Life Insurance

underwritten by  
Lincoln American Life  
Insurance Company



### Professional Overhead Expense Insurance



underwritten by Occidental Life  
Insurance Company of California

### Disability Income Insurance

underwritten by  
National Casualty Company



*Administered by*

### Accidental Death & Dismemberment Insurance



underwritten by  
Fireman's Fund  
American Life Insurance Company

## HEALTH AGENCIES OF THE WEST, INC.

*And Locally Serviced by*

### DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200  
Phoenix, Arizona 85016  
(602) 277-6672

630 Craycroft Road  
Tucson, Arizona 85711  
(602) 745-0793



**Merrill Lynch  
Realty**

**Tom Fannin**



### **Camelback Mountain Foothills**

- Spacious executive home — 4 bedroom plus maid split, 3 $\frac{3}{4}$  baths, approximately 4220 square feet of luxury living.
- Territorial Spanish home—situated on approximately 1 acre in the Camelback Mountain foothills—stunning views abound.
- Many more features too numerous to mention.
- Deluxe kitchen with charming morning room and patio.
- Rustic family room offers wet bar, fireplace and Mexican tile flooring.
- Exterior amenities include entry courtyard with fountain, beautiful pool area, lovely patios, mature citrus.
- Separate game room suitable for billiards table.

**Call Starla Mans**  
**Bus: 997-7471**  
**Res: 956-8652**

**5409 E. McDonald Dr.**  
**\$293,000**

## **MEDICAL BOOKSTORE**



The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

### **MEDICAL BOOKSTORE**

College of Medicine  
Arizona Health Sciences Center  
Tucson, Arizona 85724  
Phone: 626-6669

# **COMPUTED TOMOGRAPHY, LTD.**

## **Cranial and Body CT Scanning**

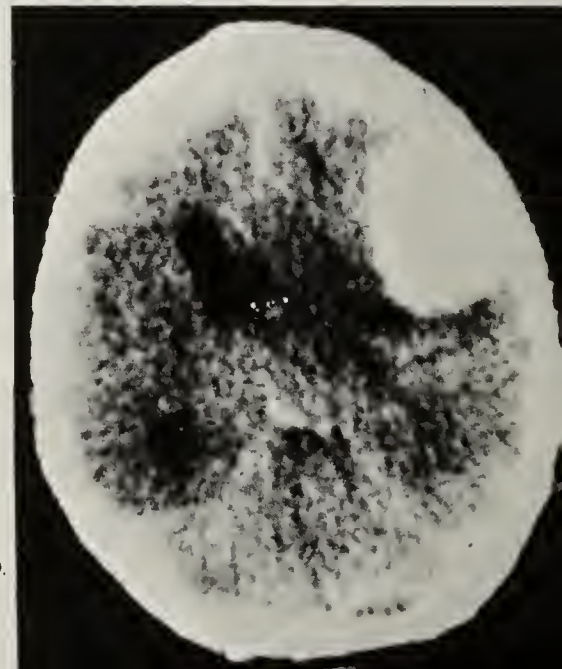
ARIZONA MEDICAL PLAZA  
1728 WEST GLENDALE AVENUE, SUITE LL3  
PHOENIX, ARIZONA  
PHONE 995-1557

**DELTA 50**  
**DELTA 2020**  
**2 Sec. Scanner**

PLAZA DEL RIO MEDICAL CENTER  
9419 WEST THUNDERBIRD ROAD  
SUN CITY, ARIZONA  
PHONE 972-1127



WALTER J. BROWN, M.D.  
JOHN B. FOX, M.D.  
ALFRED J. DELLA ROCCA, M.D.  
LELAND E. SARGENT, M.D.  
DONALD A. TOBIAS, M.D.  
ROBERT S. WALDMAN, M.D.





# **SAVE \$650 ON MY OFFICE SUPPLIES??**

Arizona physicians are saving as much as 28% on purchases of professional supplies and equipment through the Western Physicians Purchasing Association, a non-profit organization partially owned by your state medical association.

The average WPPA member from Arizona saved \$458 in 1979 — more than 9 times the 1980 dues of \$50.00 per doctor.

Professional items, office supplies, professional equipment, office furniture . . .  
more than 16,000 items available.

## **HOW MUCH MONEY HAVE YOU LOST BECAUSE YOU HAVEN'T BEEN A WPPA MEMBER?**

For additional information, call WPPA at 1-774-8692

**It's Easy . . .**

**Just Join The WPPA, It Will More Than Save you State Medical Association Dues—**

## **WESTERN PHYSICIAN PURCHASING ASSOCIATION**

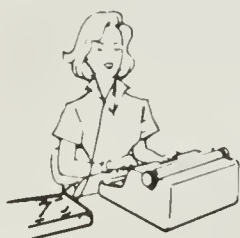
**Another membership benefit of the  
Arizona Medical Association**

# Classified

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"



## Medical Transcription

Serving the medical  
profession for 20 years

## MULLEN MEDICAL SERVICE, INC.

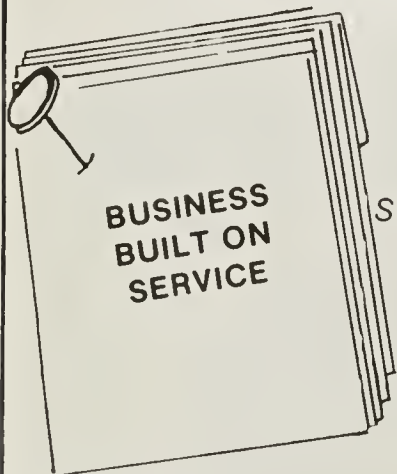
4502 North 36th Street  
Phoenix, Arizona 85018.  
Telephone (602) 955-0763

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

## GUARANTEED SAVINGS!!



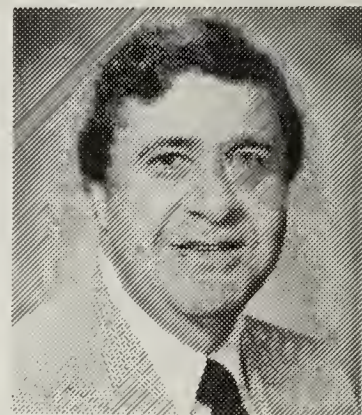
Billing and mailing  
same — day services

*Statements made from your  
ledgers at your office*

**House of Mailings**  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708

**L. Louis Jacob**  
General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions



**We Want You With Us**

**Occidental Life**  
A Transamerica Company

Occidental Life Insurance Company of California

## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### MEDICAL PRACTICE AVAILABLE

M. D. retiring after 35 years general practice in one central location. Near all big hospitals and laboratories. Instant income. Will work with new doctor during transition. Financing available to qualified buyer. Sale includes real estate, medical practice, all furnishings and equipment and has two rentals. Call or write: Catalina Realty Co., 4317 East McDowell Road, Phoenix, Arizona 85008. (602) 947-3612.

### LOCUM TENES - COMPHEALTH

Our medical group can place a well-qualified physician in your practice during your absence. For more information call or write: Comprehensive Health Systems, Inc., 175 West Second South, Salt Lake City, UT 84101. (801) 532-1200.



**CLINICAL LABORATORY  
MANAGEMENT SERVICE**

A full service physician's office requires a clinical laboratory that is capable of producing results on a stat basis. Do you presently have a laboratory? If not why not? If you have a laboratory; would you like to perform tests that you thought were impossible to perform! Now you will be able to get help in starting a laboratory, expanding, upgrading or managing. For further information please call (602) 264-3579.

**PRACTICE FOR SALE**

TUCSON - OB/GYN with established practice planning early retirement. Phone: (602) 795-6029.

**REAL ESTATE**

**ALL NEW DELUXE SUITES**

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

**LIFE MEDICAL BUILDING**

224 E. Hatcher Road  
Phoenix, AZ 85020

Akil Affan, M.D., Obstetrics & Gynecology and Camille Harize, M.D., Family practice—Suites are available from 1100 sq. ft. to 1550 sq. ft. For more information call (602) 944-1583.

**SKI SUNRISE**

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

**CHRISTOWN AREA**

Single unit 1,850 sq. ft. office bldg. for sale or lease. Zoned for professionals only. Owner will finance. Ample parking, built-in telephone system and effective layout. Ask for Mr. Montgomery at (602) 177-5448 or 997-1921.

**SCOTTSDALE INVESTMENT**

9 3/4% assumable existing financing with low CTM or OWC; new condo; 24-hours guard gate security; 3 pools; tennis court; 2 bedroom/den; many upgrades. For details, call (602) 959-8492. Owner/Agent.

**MEMORIAL MEDICAL OFFICE  
BUILDING**

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

**BEAUTIFUL CONDOMINIUM**

CondomInlos Pilar  
San Carlos Bay, Mexlco  
For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

**PINETOP MOUNTAIN CABIN - FOR  
RENT**

White Mountain summer home. Ideal now for Winter activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

**MESA OFFICE SPACE FOR SUB-  
LEASE**

1450 South Dobson Road. On grounds of Desert Samaritan Hospital. 1720 sq. ft. Available after July 1, 1980. Suitable for Family Practice. Internal Medicine or other specialties. Medical equipment may be available (either for lease or sale.) One room designed for x-ray or regular exam room. Contact: (602) 831-8297. 2738 S. Pecan, Mesa 85202.

**FLAGSTAFF OFFICE AVAILABLE FOR  
RENT**

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

**ATTENTION PROFESSIONALS!**

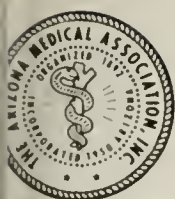
Looking for that special something for your office or waiting room? Does the atmosphere seem dull and lifeless? AQUATIC PROFESSIONALS has the answer. We can now bring life to your office through the mysteries of an underwater world. An aquarium will fascinate those who visit you. Complete sales and maintenance programs available. Call: (602) 867-2444 for appointment.

## INDEX TO ADVERTISERS

|                                              |                |
|----------------------------------------------|----------------|
| AirEvac .....                                | 4              |
| Allied Envelope & Printing, Inc. ....        | 16             |
| The Anesthesia Office, Inc. ....             | 18             |
| Arizona Laminating .....                     | 66             |
| Bristol Laboratories                         |                |
| Togopen .....                                | 6, 7, 8        |
| Boots Pharmaceuticals                        |                |
| Ru-Tuss .....                                | 11, 12, 13, 14 |
| Burroughs Wellcome                           |                |
| Zyloprim .....                               | 3              |
| Emprin with Codeine #3 .....                 | 60             |
| Camelback Hospital .....                     | 10             |
| Classified Ads .....                         | 70, 71         |
| Computed Neuorological Scanning Center ..... | 17             |
| Computed Tomography .....                    | 68             |
| Doctors Central Directory .....              | 70             |
| Eli Lilly & Co.                              |                |
| Keflex .....                                 | 817            |
| Fannin Realtors .....                        | 68             |
| Good Samaritan Hospital                      |                |
| Vectrocardiography .....                     | 45             |
| HBA Life Insurance .....                     | 57             |
| Headache Group of the Southwest .....        | 66             |
| Health Agencies of the West .....            | 67             |

|                                          |                           |
|------------------------------------------|---------------------------|
| Health Facilities Development Inc. ....  | 15                        |
| House of Mailings .....                  | 70                        |
| Louis Jacobs .....                       | 70                        |
| John C. Lincoln Hospital .....           | 12                        |
| Martens Development .....                | 16                        |
| Medical Bookstore .....                  | 68                        |
| Medical Business Consultants .....       | 8                         |
| Mica Insurance Co. ....                  | 5                         |
| Mullen Medical Service .....             | 70                        |
| Old Colony Trust .....                   | 16                        |
| Roche Labs                               |                           |
| Valium .....                             | Second Cover, 3           |
| Limbitral .....                          | 40, 41, 42                |
| Librax .....                             | 59                        |
| Bactrim .....                            | Third Cover, Fourth Cover |
| Roswell Bookbinding .....                | 66                        |
| Danny T. Sievert                         |                           |
| Insurance .....                          | 70                        |
| Smith Kline & French                     |                           |
| Dyazide .....                            | 39                        |
| St. Luke's Hospital Medical Center ..... | 62                        |
| Valley Prosthetics .....                 | 8                         |
| Western Physician                        |                           |
| Purchasing Assoc. ....                   | 69                        |





# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

SSN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

## SEMINARS IN CONTINUING EDUCATION

### CARDIOLOGY

- The Dilemma of Atypical Abdominal Pain:  
A Case of Celiac Artery Stenosis .....94  
*Edward B. Diethrich, M.D., et al*

### ENDOCRINOLOGY & METABOLISM

- Ectopic Hormone Production  
Newer Perspectives .....96  
*Stephen E. Dippe, M.D.*

### GASTROENTEROLOGY & LIVER DISEASE

- Esophageal Scleroderma .....98  
*Steven R. Kanner, M.D.*

### NEUROLOGY

- McArdle's Disease .....99  
*Janet A. Johnson, M.D., et al*

### NUTRITION

- Nutrition and the Elderly Patient.....102  
*Gail G. Harrison, Ph.D., R.D., et al*

### OBSTETRICS & GYNECOLOGY

- Sinusoidal Patterns .....107  
*Walter B. Cherny, M.D.*

### ONCOLOGY

- Carcinomatous Meningitis .....109  
*Gerald Hagin, M.D.*

### PSYCHIATRIC DISORDERS

- Understanding .....112  
*William B. McGrath, M.D.*

## STATE OF THE ART

- Juvenile Rheumatoid Arthritis .....115  
*F. Paul Alepa, M.D.*

## EDITORIALS

- AMA Membership .....119  
*John T. Clymer, M.D.*

- Physician Advertising:  
The Best Method .....119  
*Marshall B. Block, M.D.*

- Human Experimentation  
and the Law .....120  
*Milan Novak, M.D., Ph.D.*

- IN MEMORIAM** .....121

- ARMA REPORTS** .....123

- COMINGS & GOINGS** .....128

- FUTURE MEETINGS** .....129

LIBRARY  
U.C. SAN FRANCISCO

MAR 6 - 1981

THE LIBRARY, ACQUISITIONS DIV.  
U. OF CALIF., S.F. 94143  
SAN FRANCISCO, CA

# half-life

## Just one built-in advantage

**Ensures smooth therapeutic effect even if a dose is missed** The relatively longer half-life of Valium® (diazepam/Roche) has important clinical and pharmacological implications. Steady-state levels generally are reached within 5-7 days with no further accumulation. At this plateau, the patient benefits from the consistent, steady response you expect. Sharp blood level variations, frequently attributed to agents with a short half-life, do not appear with Valium.

**Avoids sudden symptom breakthrough**

Once steady-state levels are achieved, sudden reemergence of symptoms is unlikely. Diazepam and its active metabolites exhibit overlapping half-lives that are advantageous not only during therapy but especially when pharmacologic support is discontinued.

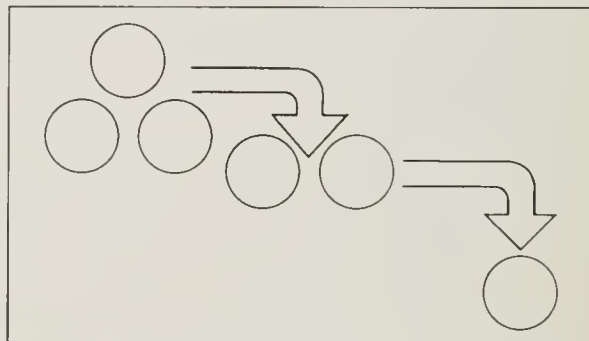
Elimination rates are gradual with Valium and thus provide a compatible adjustment interval for

the patient. In comparison, blood levels of short-acting agents with inactive metabolites decrease more rapidly and are more likely to be associated with withdrawal symptoms if medication is stopped abruptly.\* With Valium unwanted effects other than drowsiness or ataxia are rare. Patients should be cautioned about driving and advised to avoid alcohol.

**Tapers naturally; complements gradual dosage reduction at discontinuation**

When any psychoactive medication is discontinued, it is good medical practice to gradually reduce the dosage. From your own experience you know this is rarely necessary after a short course of Valium therapy, but for patients on extended therapy, gradual reduction of dosage is advisable. This regimen, along with the self-tapering feature of Valium, provides a smooth transition to independent coping.

\*Sellers EM: *Drug Metab Rev* 8(1):5-11, 1978



*in the management of  
symptoms of anxiety*

**Valium®**  
diazepam/Roche  
2-mg, 5-mg, 10-mg scored tablets

*effective therapy through  
efficient pharmacodynamics*

Before prescribing, please see summary of product information on next page

ROCHE®



# Valium® diazepam/Roche

**Before prescribing, please consult complete product information, a summary of which follows:**

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety, symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, atetosis, stiff-man syndrome, convulsive disorders (not for sole therapy)

The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication, abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy

# We're worthy of your trust.



**Old Colony Trust Company  
of Arizona**

AN AFFILIATE OF THE FIRST NATIONAL BANK OF BOSTON

1114 Arizona Title Building • 111 W. Monroe  
Phoenix, Arizona 85003 • (602) 253-6155

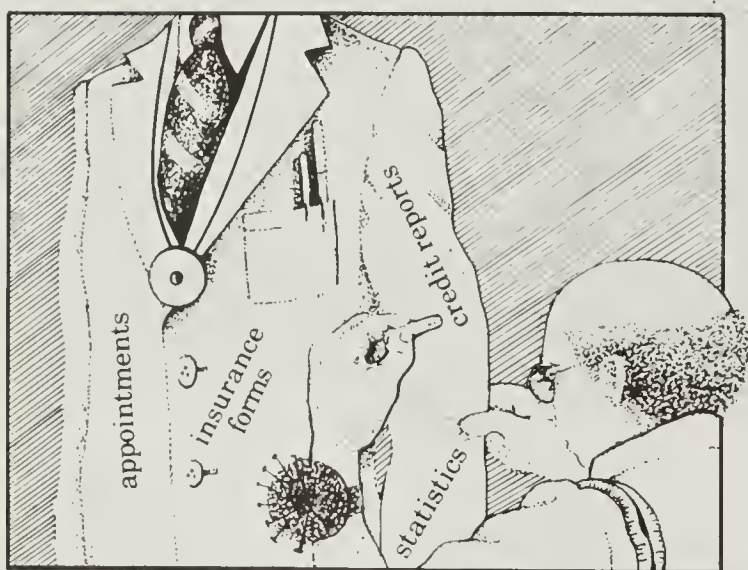
*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.

# NOW, AN AFFORDABLE COMPUTER SYSTEM TAILORED TO FIT YOUR PRACTICE

The ACT-OMEGA System:  
Every Day Without It Could Be Costing You Money



## WHY?

1. All your bookkeeping needs can be handled simply and efficiently, including billing, credit records, appointments, general ledger and payroll.
2. The system quickly prepares your claim forms to speed your payments from insurance companies.
3. You receive current credit reports to help you control your overdue patient payments.
4. You have fast and comprehensive access to all patient-related information, including physician statistics by diagnosis and type of procedure.

5. You receive important management reports such as physician's reports giving the number of new patients seen, the office revenue provided, and expenses incurred by both the individual doctor and the group as a whole.

PLUS many more features to help you manage your practice more efficiently. We adapt to you. We don't ask you to adapt to us.

ACT-OMEGA has been providing medical information management systems in the valley since 1970. As a division of Advanced Computer Techniques Corporation, it is part of a multi-national information processing, products, consulting and services organization.

We can work with you three ways: Set up a computer system in your office, put a terminal in your office connected to our computer, or give us your paper work and we'll do the work for you. Which ever system you choose, **ACT-OMEGA has the systems to make your growth easy and profitable.**

Call ACT-OMEGA now to find out how affordable your computer system can be . . . You may be surprised how quickly a computer can pay for itself.

# ACT-OMEGA

222 N. Central, Suite 101 Phoenix, Arizona 85004 602/258-3222



SPECIFY  
**ZYLOPRIM<sup>®</sup>**  
(allopurinol)  
THE  
ORIGINAL  
ALLOPURINOL



Two convenient dosage forms:  
100 mg (white) and 300 mg (peach)  
Scored Tablets



Tablets imprinted with brand name to  
assist in tablet identification.



Burroughs Wellcome Co.  
Research Triangle Park  
North Carolina 27709

# Yesterday's Folk Remedy:

## A rye loaf in the rafters.



Early in this century in Central Europe, almost every farm family kept a loaf of moldy rye bread on one of the kitchen beams. When any family member was cut or bruised, it was an old custom to cut a thin slice from the outside of the loaf, mix it into a paste with water, and apply it to the wound with a bandage. It was believed that no infection would then result from the cut.<sup>1</sup>





# Today's Tradition: **Tegopen**<sup>®</sup> (cloxacillin sodium)

for the treatment\* of  
known or suspected  
staphylococcal  
infections such as:

- Acute sinusitis
- Furunculosis and carbuncles
- Impetigo
- Secondarily infected dermatitis
- Cellulitis
- Abscesses
- Infected sebaceous cysts

In serious, deep-seated  
staph infections, 500 mg  
q.i.d. dosage is  
recommended.<sup>†</sup>

- Tegopen has been reported active against 96% of *Staphylococcus aureus*.<sup>‡</sup>
- 80% of *S aureus* has been reported resistant to amoxicillin and ampicillin.<sup>‡</sup>
- 88% of *S aureus* has been reported resistant to penicillins G and V.<sup>‡</sup>
- Staph resistance to erythromycin may develop during a course of therapy.<sup>3</sup>



Available as 500-mg and 250-mg capsules  
and Oral Solution 125 mg/5 ml.

## **Tegopen**<sup>®</sup> (cloxacillin sodium) Today's Penicillin for Today's Physician

1. Florey HW, Chain E, Heatley NG, et al: *Antibiotics*. London, Oxford University Press, 1949, p 2.
2. Bac-Data Bacteriologic Report, Professional Market Research, 1978-1979. The clinical significance of *in vitro* data is unknown.
3. Erythromycin prescribing information (in *Physicians' Desk Reference*, ed 34. Oradell, NJ, Medical Economics Co, 1980) states that staph resistance may develop during treatment.

See brief summary of prescribing information on  
an adjoining page.

Copyright © 1981, Bristol Laboratories

\*Note: The choice of Tegopen should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci, Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the bacteriology report later indicates that the infection is due to an organism other than a penicillin G-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semisynthetic penicillin.

†In serious, life-threatening infections, oral preparations of the penicillinase-resistant penicillins should not be relied on for initial therapy.

‡Not all isolates may have been tested using both discs.

# Tegopen® (cloxacillin sodium)

Capsules and Oral Solution

## Brief Summary of Prescribing Information

For complete information, consult Official Package Circular  
(12) 9/11/75

### INDICATIONS:

Although the principal indication for cloxacillin sodium is in the treatment of infections due to penicillinase-producing staphylococci, it may be used to initiate therapy in such patients in whom a staphylococcal infection is suspected (See Important Note below.) Bacteriologic studies to determine the causative organisms and their sensitivity to cloxacillin sodium should be performed.

### IMPORTANT NOTE

When it is judged necessary that treatment be initiated before definitive culture and sensitivity results are known, the choice of cloxacillin sodium should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the bacteriology report later indicates the infection is due to an organism other than a penicillin G-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semi-synthetic penicillin.

Recent studies have reported that the percentage of staphylococcal isolates resistant to penicillin G outside the hospital is increasing, approximating the high percentage of resistant staphylococcal isolates found in the hospital. For this reason, it is recommended that a penicillinase-resistant penicillin be used as initial therapy for any suspected staphylococcal infection until culture and sensitivity results are known.

Cloxacillin sodium is a compound that acts through a mechanism similar to that of methicillin against penicillin G-resistant staphylococci. Strains of staphylococci resistant to methicillin have existed in nature and it is known that the number of these strains reported has been increasing. Such strains of staphylococci have been capable of producing serious disease, in some instances resulting in fatality. Because of this, there is concern that widespread use of the penicillinase-resistant penicillins may result in the appearance of an increasing number of staphylococcal strains which are resistant to these penicillins.

Methicillin-resistant strains are almost always resistant to all other penicillinase-resistant penicillins (cross-resistance with cephalosporin derivatives also occurs frequently). Resistance to any penicillinase-resistant penicillin should be interpreted as evidence of clinical resistance to all, in spite of the fact that minor variations in *in vitro* sensitivity may be encountered when more than one penicillinase-resistant penicillin is tested against the same strain of staphylococcus.

### CONTRAINDICATIONS:

A history of a previous hypersensitivity reaction to any of the penicillins is a contraindication.

### WARNING:

Serious and occasionally fatal hypersensitivity (anaphylactoid) reactions have been reported in patients on penicillin therapy. Although anaphylaxis is more frequent following parenteral therapy it has occurred in patients on oral penicillins. These reactions are more apt to occur in individuals with a history of sensitivity to multiple allergens.

There have been well documented reports of individuals with a history of penicillin hypersensitivity reactions who have experienced severe hypersensitivity reactions when treated with a cephalosporin. Before therapy with a penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, and other allergens. If an allergic reaction occurs, the drug should be discontinued and the patient treated with the usual agents, e.g., pressor amines, antihistamines, and corticosteroids.

Safety for use in pregnancy has not been established.

### PRECAUTIONS:

The possibility of the occurrence of superinfections with mycotic organisms or other pathogens should be kept in mind when using this compound as with other antibiotics. If superinfection occurs during therapy, appropriate measures should be taken.

As with any potent drug, periodic assessment of organ system function, including renal, hepatic, and hematopoietic, should be made during long-term therapy.

### ADVERSE REACTIONS:

Gastrointestinal disturbances, such as nausea, epigastric discomfort, flatulence, and loose stools, have been noted by some patients. Mildly elevated SGOT levels (less than 100 units) have been reported in a few patients for whom pretherapeutic determinations were not made. Skin rashes and allergic symptoms, including wheezing and sneezing, have occasionally been encountered. Eosinophilia, with or without overt allergic manifestations, has been noted in some patients during therapy.

### USUAL DOSAGE:

Adults 250 mg q 6h

Children, 50 mg /Kg /day in equally divided doses q 6h. Children weighing more than 20 Kg. should be given the adult dose. Administer on empty stomach for maximum absorption.

**N.B. INFECTIONS CAUSED BY GROUP A BETA-HEMOLYTIC STREPTOCOCCI SHOULD BE TREATED FOR AT LEAST 10 DAYS TO HELP PREVENT THE OCCURRENCE OF ACUTE RHEUMATIC FEVER OR ACUTE GLOMERULONEPHRITIS.**

### SUPPLIED:

Capsules—250 mg in bottles of 100 500 mg in bottles of 100  
Oral Solution—125 mg /5 ml in 100 ml and 200 ml bottles

**BRISTOL®**

Bristol Laboratories  
Division of Bristol-Myers Company  
Syracuse, New York 13201

## YOU WORKED HARD

FOR THAT  
DIPLOMA...



why not have it  
laminated?

it will last a lifetime....

## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.

7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

## MEDICAL BOOKSTORE



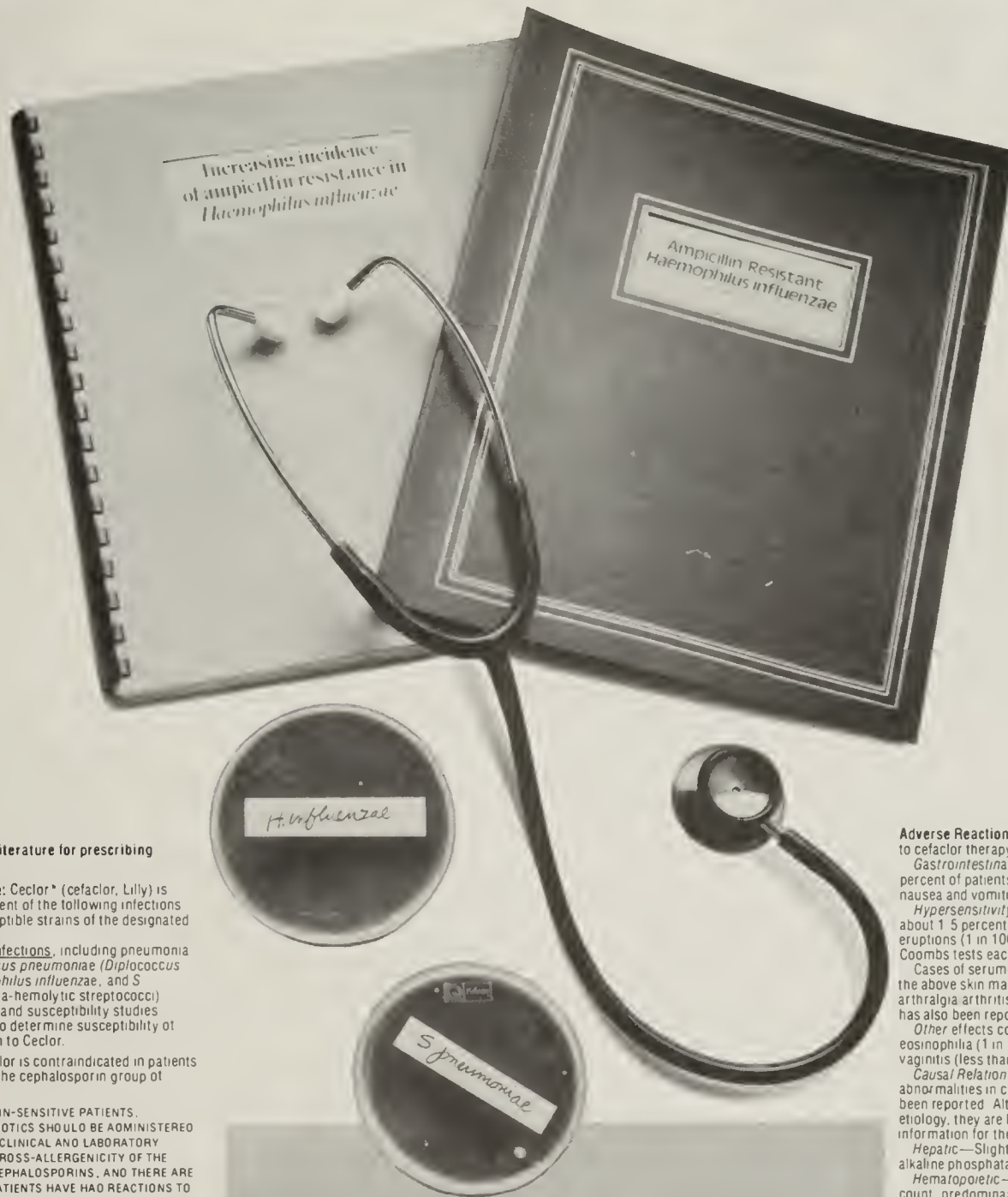
The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

## MEDICAL BOOKSTORE

College of Medicine  
Arizona Health Sciences Center  
Tucson, Arizona 85724  
Phone: 626-6669



# An added complication... in the treatment of bacterial bronchitis\*



**Brief Summary.** Consult the package literature for prescribing information.

**Indications and Usage:** Ceclor\* (cefactor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms.

**Lower respiratory infections,** including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci). Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Ceclor.

**Contraindication:** Ceclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

**Warnings:** IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS TO BOTH DRUG CLASSES (INCLUDING ANAPHYLAXIS AFTER PARENTERAL USE).

Antibiotics, including Ceclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

**Precautions:** If an allergic reaction to cefactor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g. pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefactor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Ceclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Ceclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinifast\* tablets but not with Tes-Tape\* (Glucose Enzymatic Test Strip, USP, Lilly). **Use in Pregnancy**—Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

**Use in Infancy**—Safety of this product for use in infants less than one month of age has not been established.

**Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis\*—are sensitive to treatment with Ceclor.<sup>1-6</sup>**

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Ceclor.<sup>7</sup>

## Ceclor®

### cefactor

Pulvules®, 250 and 500 mg

**Adverse Reactions:** Adverse effects considered related to cefactor therapy are uncommon and are listed below. *Gastrointestinal* symptoms occur in about 2-5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

*Hypersensitivity* reactions have been reported in about 1-5 percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients.

Cases of serum-sickness-like reactions, including the above skin manifestations, fever, and arthralgia/arthritis, have been reported. Anaphylaxis has also been reported.

*Other* effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

*Causal Relationship Uncertain*—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

*Hepatic*—Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

*Hematopoietic*—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

*Renal*—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[1030808]

\*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

**Note:** Ceclor\* (cefactor) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

#### References

1. Antimicrob. Agents Chemother., 8:91, 1975.
2. Antimicrob. Agents Chemother., 11:470, 1977.
3. Antimicrob. Agents Chemother., 13:584, 1978.
4. Antimicrob. Agents Chemother., 12:490, 1977.
5. Current Chemotherapy (edited by W. Siegenthaler and R. Luthy), 11:880. Washington, D.C.: American Society for Microbiology, 1978.
6. Antimicrob. Agents Chemother., 13:861, 1978.
7. Data on file, Eli Lilly and Company.
8. Principles and Practice of Infectious Diseases (edited by G. L. Mandell, R. G. Douglas, Jr., and J. E. Bennett), p. 487. New York: John Wiley & Sons, 1979.



100061

Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.

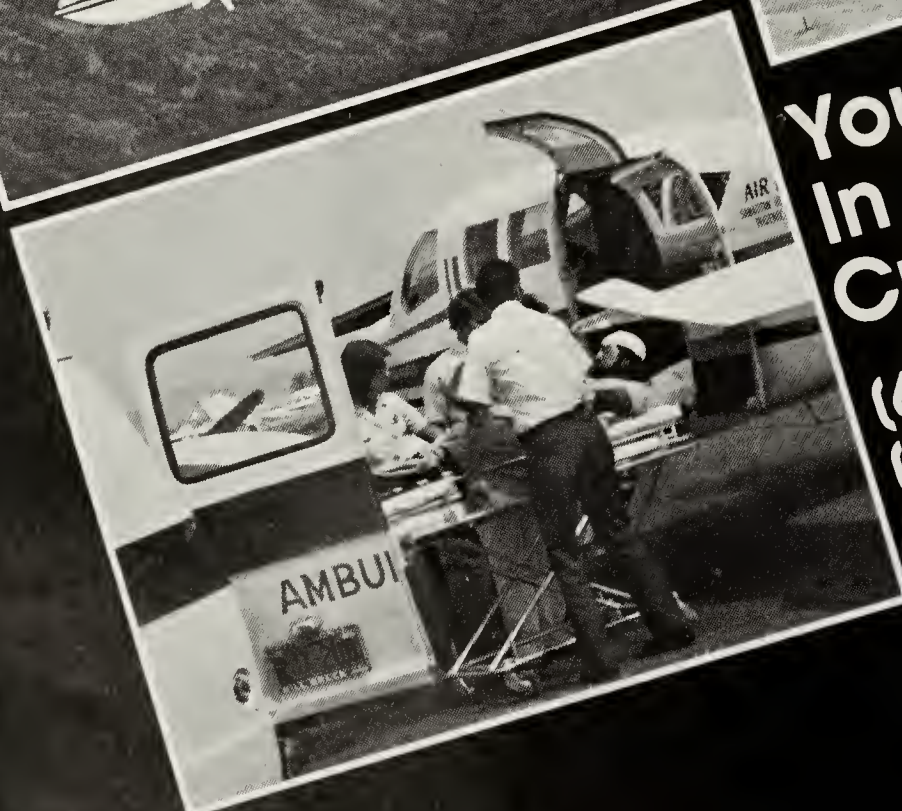
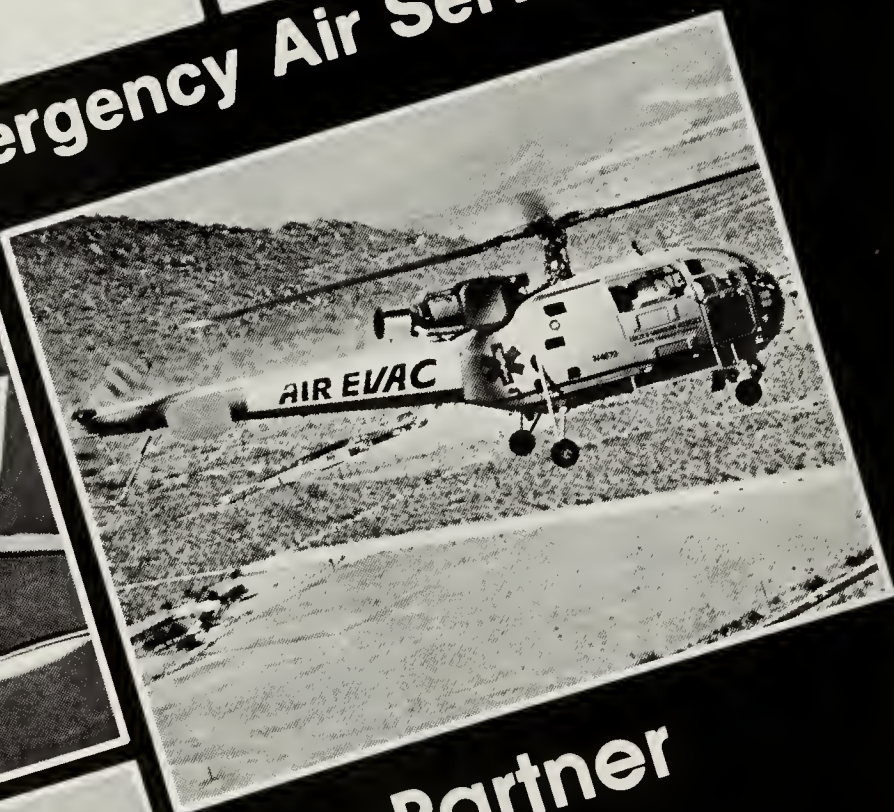
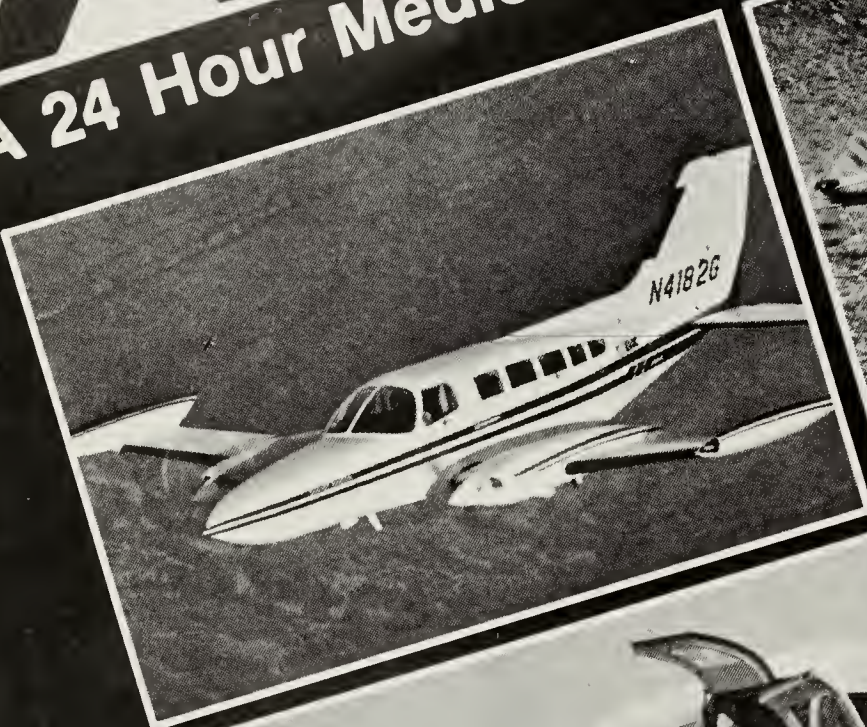
Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630.



Lincoln Samaritan

# AIR EVAC

A 24 Hour Medical Emergency Air Service



**Your Partner  
In  
Critical Care**  
**(602) A-I-R-E-V-A-C**  
**(247-3822)**

**Our name is our number**  
**Serving Arizona and the Nation**  
**Since 1969**



# Pioneers in Medicine For the Family

## **BOOTS PHARMACEUTICALS, INC.**

Operating in the U.S. since 1977, Boots is a world-wide leader in pharmaceutical research and manufacture. Boots has directed its efforts toward providing products useful in the practice of family medicine.

Some of our better known products are Lopurin™, Ru-Tuss® and Ru-Vert®. This advertisement highlights four other products particularly useful for the family.

**F-E-P CREME®** ♦ **SU-TON®** ♦ **TWIN-K®** ♦ **TWIN-K-CI™**





For the Majority of  
Steroid-Responsive Dermatoses\*  
Seen in Family Practice

## F-E-P CREME®

(Iodochlorhydroxyquin — Pramoxine HCl — Hydrocortisone)

### The 4 in 1 Corticosteroid Cream

Anti-inflammatory, antifungal, antibacterial actions, and, uniquely, a topical anesthetic for immediate relief of the itching or burning that frequently accompanies skin problems. One size (½ ounce), one strength for ease of prescription.

\*This drug has been evaluated as possibly effective for these indications.  
See prescribing information on last page of this advertisement.

For the Geriatric Patient

## SU-TON®

### Liquid Tonic

A pleasant tasting prescription tonic containing iron, vitamins, minerals, an analeptic and 18% alcohol. Ideal for those who may benefit from vitamin deficiency prevention. Just one tablespoon before each meal.

Each 45 ml (3 tablespoonfuls) contains:

|                                          |        |
|------------------------------------------|--------|
| Pentylentetrazol.                        | 30 mg  |
| Niacin.                                  | 50 mg  |
| Vitamin B-1.                             | 10 mg  |
| Vitamin B-2.                             | 5 mg   |
| Vitamin B-6.                             | 1 mg   |
| Vitamin B-12.                            | 3 mcg  |
| Choline.                                 | 100 mg |
| Inositol.                                | 50 mg  |
| Manganese (as Manganese Sulfate).        | 1 mg   |
| Magnesium (as Magnesium Sulfate).        | 2 mg   |
| Zinc (as Zinc Sulfate).                  | 1 mg   |
| Iron (as Ferric Pyrophosphate, Soluble). | 22 mg  |
| Alcohol.                                 | 18%    |

See prescribing information on last page of this advertisement





## For Potassium Supplementation Improved Compliance...

# TWIN-K®

Each 15 ml supplies 20 mEq of potassium ions as a combination of potassium gluconate and potassium citrate in a sorbitol and saccharin solution.

The good tasting potassium supplement  
Designed for prophylactic and therapeutic use  
with diuretics and adrenocorticoids.  
Pleasant taste and convenient dosage aid  
patient compliance.

The organic salt of potassium can be given as a  
liquid without producing significant gastric  
symptoms and without an untoward effect on  
the mucosa of the small intestine.<sup>1</sup>

Beeson-McDermott, Textbook of Medicine, 15th Ed. 1979, W.B. Saunders Co., Philadelphia, page 1959

## In Cases with Chloride Deficiency...

# TWIN-K-Cl™

Each 15 ml supplies 15 mEq of potassium ions and 4 mEq of chloride ions as a combination of potassium gluconate, potassium citrate, and ammonium chloride in a sorbitol and saccharin solution.

The good tasting potassium supplement with  
chloride

- In hypokalemic hypochloremic alkalosis, chloride ions are required. Twin-K-Cl is specially formulated to be a good tasting chloride containing potassium supplement.
- Contains no potassium chloride. Twin-K-Cl is a carefully balanced combination of organic potassium salts plus ammonium chloride.
- In hypochloremic patients, potassium should be provided as the chloride salt, or chloride ion must be made available in some other form, such as ammonium chloride or sodium chloride.<sup>1</sup>

See prescribing information on last page of this advertisement.





## F-E-P CREME

### DESCRIPTION

F-E-P Creme is a topical water soluble anti-inflammatory, anesthetic preparation intended for treatment of various inflammatory skin disorders. The drug contains the following active ingredients:

|                          |      |
|--------------------------|------|
| Iodochlorhydroxyquin.    | 3.0% |
| Pramoxine Hydrochloride. | 0.5% |
| Hydrocortisone           | 1.0% |

### INDICATIONS AND USAGE

Based on a review of this drug by the National Academy of Sciences-National Research Council and/or other information, FDA has classified the indications as follows: "Possibly" effective: Contact or atopic dermatitis, impetiginized eczema; nummular eczema; infantile eczema; endogenous chronic infectious dermatitis; stasis dermatitis; pyoderma; nuchal eczema and chronic eczematoid otitis externa; acne urticata; localized or disseminated neurodermatitis; lichen simplex chronicus; anogenital pruritus (vulvae, scroti, ani); folliculitis; bacterial dermatoses; mycotic dermatoses such as tinea (capitis, cruris corporis, pedis); moniliasis, intertrigo. Final classification of the less-than-effective indications requires further investigation.

Pramoxine Hydrochloride promptly relieves pain and itch. This compound may be used safely on the skin of those patients sensitive to the "caine" type local anesthetics.

### CONTRAINDICATIONS

Hypersensitivity to F-E-P Creme, or any of its ingredients or related compounds; lesions of the eye, tuberculosis of the skin, most viral skin lesions (including herpes simplex, vaccinia and varicella).

### WARNINGS

This product is not for ophthalmic use. In the presence of systemic infections, appropriate antibiotics should be used.

### USE IN PREGNANCY

Topical steroids have not been reported to have an adverse effect on pregnancy. However, fetal abnormalities have been produced in pregnant laboratory animals that have been exposed to large doses of topical corticosteroids. Drugs of this class should not be used extensively during pregnancy.

### PRECAUTIONS

F-E-P Creme may be irritating to the skin in some patients. If irritation occurs discontinue therapy. Staining of clothes or hair may also occur with use of this preparation. Although systemic toxicity has not been reported with this drug, adrenal pituitary suppression is possible, especially when the drug is used extensively or kept under an occlusive dressing for a prolonged period. Iodochlorhydroxyquin can be absorbed through the skin and interfere with thyroid function tests. Therapy with this preparation should stop at least a month before performance of these tests. The ferric chloride test for phenylketonuria (PKU) can be positive if F-E-P Creme is on the diaper or in the urine. Prolonged use of this drug may result in an overgrowth of non-susceptible organisms requiring appropriate therapy.

### ADVERSE REACTIONS

Skin rash or hypersensitivity may occur following topical application.

The following local adverse reactions have been reported with topical corticosteroids, especially under occlusive dressings: burning, itching, irritation, dryness, folliculitis, hypertrichosis, acneiform eruptions, hypopigmentation, perioral dermatitis, allergic contact dermatitis, maceration of the skin, secondary infection, skin atrophy, striae, miliaria. Discontinue therapy if untoward reactions occur.

### DOSAGE AND ADMINISTRATION

Apply a thin layer of the drug to affected parts 3-4 times daily.

### Note:

1. F-E-P Creme is distributed with 3.0% iodochlorhydroxyquin for use when antibacterial/antifungal activity is desired.
2. F-E-P Creme (Plain) is the regular formulation, but without iodochlorhydroxyquin.

Both of these preparations contain pramoxine hydrochloride, which has topical anesthetic properties. Pramoxine is not chemically related to benzoic acid or amide type topical anesthetics. Patients can tolerate pramoxine although they may be sensitive to other "caine" type of topical or local anesthetics.

### HOW SUPPLIED

F-E-P Creme 1/2 ounce (15 gm) tubes NDC 0524-0026-51  
F-E-P Creme Plain 1/2 ounce (15 gm) tubes NDC 0524-0025-51  
Federal law prohibits dispensing without a prescription.  
July 1980

## SU-TON®

### DESCRIPTION

Forty-five milliliters of SU-TON contain the following ingredients:

|                                         |        |
|-----------------------------------------|--------|
| Pentylentetrazol                        | 30 mg  |
| Niacin                                  | 50 mg  |
| Vitamin B-1                             | 10 mg  |
| Vitamin B-2                             | 5 mg   |
| Vitamin B-6                             | 1 mg   |
| Vitamin B-12                            | 3 mcg  |
| Choline                                 | 100 mg |
| Inositol                                | 50 mg  |
| Manganese (as Manganese Sulfate)        | 1 mg   |
| Magnesium (as Magnesium Sulfate)        | 2 mg   |
| Zinc (as Zinc Sulfate)                  | 1 mg   |
| Iron (as Ferric Pyrophosphate, Soluble) | 22 mg  |
| Alcohol                                 | 18%    |

### INDICATIONS AND USAGE

SU-TON contains pentylentetrazol which may be helpful in the older patient as an anesthetic agent when mental confusion and memory defects are present. SU-TON also contains vitamins, trace minerals, and iron, for those patients who may benefit by preventing the development of a deficiency.

### CONTRAINDICATIONS

Epilepsy, convulsive disorders or known history of sensitivity to any of the listed active ingredients.

### WARNINGS

The safety of this preparation during pregnancy and lactation has not been established. Use of this drug requires that the physician evaluate the potential benefits of the drug against any possible hazard to the mother and child.

### PRECAUTIONS

Although there are no absolute contraindications to pentylentetrazol, it should be used with caution in epileptic patients or those known to have a low convulsive threshold or a focal brain lesion. Caution should be exercised when treating patients with high doses of SU-TON who have heart disease. While pentylentetrazol does not act directly on the myocardium, the results from central vagal stimulation could cause bradycardia.

### ADVERSE REACTIONS

Pentylentetrazol in high doses may produce toxic symptoms typical of central nervous system stimulants, which act on the higher motor centers and the spinal cord. Convulsions resulting from this drug are spontaneous and are not induced by external stimuli. They usually last for several minutes and are followed by profound depression and respiratory paralysis. Death has been reported from the ingestion of 10 grams of pentylentetrazol.

### DRUG ABUSE

Drug dependence has not been reported with SU-TON.

### OVERDOSAGE

Signs and symptoms of acute overdose may be due principally from overstimulation of the central nervous system and from excessive vasodilatation with resulting autonomic nervous system imbalance. The symptoms may include the following: vomiting, agitation, tremors, hyperreflexia, sweating, confusion, hallucinations, headache, hyperpyrexia, tachycardia. Treatment consists of appropriate supportive measures. If signs and symptoms are not too severe and the patient is conscious, gastric evacuation may be accomplished by induction of emesis or gastric lavage.

Intensive care must be provided to maintain adequate circulation and respiratory exchange.

### DOSAGE AND ADMINISTRATION

One tablespoonful (15 ml) 3 times a day 20-30 minutes before meals. This drug is not for use in children under 12 years of age.

### HOW SUPPLIED

Bottles of 473 ml (16 fl oz) NDC 0524-0015-16  
Federal law prohibits dispensing without prescription.  
February 1980

## TWIN-K

### DESCRIPTION

Each 15 milliliter (one tablespoonful) supplies 20 mEq of potassium ions as a combination of potassium gluconate and potassium citrate in a sorbitol and saccharin solution.

### INDICATIONS AND USAGE

For use as oral potassium therapy in the prevention or treatment of hypokalemia which may occur secondary to diuretic or corticosteroid administration. It may be used in the treatment of cardiac arrhythmias due to digitalis intoxication.

### CONTRAINDICATIONS

Severe renal impairment with oliguria or azotemia, untreated Addison's disease, adynamia episodica hereditaria, acute dehydration, heat cramps and hyperkalemia from any cause. This product should not be used in patients receiving aldosterone antagonists or triamterene.

### WARNINGS

TWIN-K (potassium gluconate and potassium citrate) is a palatable form of oral potassium replacement. It appears that little if any potassium gluconate-citrate penetrates as far as the jejunum or ileum where enteric coated potassium chloride lesions have been noted. Excessive, undiluted doses of TWIN-K may cause a saline laxative effect.

To minimize gastrointestinal irritation, it is recommended that TWIN-K be taken with meals or diluted with water or fruit juice. A tablespoonful (15 ml) in 8 ounces of water is approximately isotonic. More than a single tablespoonful should not be taken without prior dilution.

### PRECAUTIONS

Potassium is a major intracellular cation which plays a significant role in body physiology. The serum level of potassium is normally 3.8-5.0 mEq/liter. While the serum or plasma level is a poor indicator of total body stores, a plasma or serum level below 3.5 mEq/liter is considered to be indicative of hypokalemia.

The most common cause of hypokalemia is excessive loss of potassium in the urine. However, hypokalemia can also occur with vomiting, gastric drainage and diarrhea.

Usually a potassium deficiency can be corrected by oral administration of potassium supplements. With normal kidney function, it is difficult to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution since, usually, the exact amount of the deficiency is not accurately known. Checks on the patient's clinical status and periodic EKG and/or serum potassium levels should be made. High serum potassium levels may cause death by cardiac depression, arrhythmias or arrest.

In patients with hypokalemia who also have alkalosis and a chloride deficiency (hypokalemic hypochloremic alkalosis), there will be a requirement for chloride ions. TWIN-K is not recommended for use in these patients.

### ADVERSE REACTIONS

Symptoms of potassium intoxication include paresthesias of the extremities, flaccid paralysis, listlessness, mental confusion, weakness and heaviness of the legs, fall in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of the QRS complex, changes of the ST segment and tall peaked T waves.

TWIN-K taken on an empty stomach in undiluted doses larger than 30 ml can produce gastric irritation with nausea, vomiting, diarrhea, and abdominal discomfort.

### OVERDOSAGE

The administration of oral potassium supplements to persons with normal kidney function rarely causes serious hyperkalemia. However, if the renal excretory function is impaired, potentially fatal hyperkalemia can result. It is important to note that hyperkalemia is usually asymptomatic and may be manifested only by an increased serum potassium concentration with or without EKG changes. Treatment measures include:

1. Elimination of potassium containing drugs or foods.
2. Intravenous administration of 300 to 500 ml/hr of a 10% dextrose solution containing 10-20 units of crystalline insulin per 1000 milliliters.
3. Correction of acidosis.
4. Use of exchange resins or peritoneal dialysis.

In treating hyperkalemia, it should be noted that patients stabilized on digitalis can develop digitalis toxicity when the serum potassium concentration is changed too rapidly.

### DOSAGE AND ADMINISTRATION

The usual adult dosage is one tablespoonful (15 ml) in 6-8 fluid ounces of water or fruit juice, two to four times a day. This will supply 40 to 80 mEq of potassium ions. The usual preventative dose of potassium is 20 mEq per day while therapeutic doses range from 30 mEq to 100 mEq per day. Because of the potential for gastrointestinal irritation, undiluted large single doses (30 ml or more) of TWIN-K are to be avoided.

Deviations from this schedule may be indicated, since no average total daily dose can be defined, but must be governed by close observation for clinical effects.

### HOW SUPPLIED

Bottles of 1 pint (16 fl oz) NDC 0524-0021-16

### CAUTION

Federal law prohibits dispensing without prescription.

July 1980

## TWIN-K-CI™

### DESCRIPTION

Each 15 ml (one tablespoonful) supplies 15 mEq of potassium ions and 4 mEq of chloride ions as a combination of potassium gluconate, potassium citrate, and ammonium chloride, in a sorbitol and saccharin solution.

### INDICATIONS

For use as oral potassium therapy in the prevention or treatment of hypokalemia which may occur secondary to diuretic or corticosteroid administration. It may be used in the treatment of cardiac arrhythmias due to digitalis intoxication.

Potassium and chloride are usually the salts of choice in the treatment of hypokalemia since chloride and potassium deficiencies are likely to be associated with each other.

### CONTRAINDICATIONS

Severe renal impairment with oliguria or azotemia, untreated Addison's disease, adynamia episodica hereditaria, acute dehydration, heat cramps and hyperkalemia from any cause. This product should not be used in patients receiving aldosterone antagonists or triamterene.

### WARNINGS

TWIN-K-CI is a palatable form of oral potassium replacement. Excessive, undiluted doses of TWIN-K-CI may cause a saline laxative effect.

To minimize gastrointestinal irritation, it is recommended that TWIN-K-CI be taken with meals or diluted with water or fruit juice. A tablespoonful (15 ml) in 8 ounces of water is approximately isotonic. More than a single tablespoonful should not be taken without prior dilution.

### PRECAUTIONS

Potassium is a major intracellular cation which plays a significant role in body physiology. The serum level of potassium is normally 3.8-5.0 mEq/liter. While the serum or plasma level is a poor indicator of total body stores, a plasma or serum level below 3.5 mEq/liter is considered to be indicative of hypokalemia.

The most common cause of hypokalemia is excessive loss of potassium in the urine. However, hypokalemia can also occur with vomiting, gastric drainage and diarrhea.

Usually a potassium deficiency can be corrected by oral administration of potassium supplements. With normal kidney function, it is difficult to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution since, usually, the exact amount of the deficiency is not accurately known. Checks on the patient's clinical status and periodic EKG and/or serum potassium levels should be made. High serum potassium levels may cause death by cardiac depression, arrhythmias or arrest.

In patients with hypokalemia who also have alkalosis and a chloride deficiency (hypokalemic hypochloremic alkalosis), there will be a requirement for chloride ions. TWIN-K-CI is recommended for use in these patients.

### ADVERSE REACTIONS

Symptoms of potassium intoxication include paresthesias of the extremities, flaccid paralysis, listlessness, mental confusion, weakness and heaviness of the legs, fall in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of the QRS complex, changes of the ST segment and tall peaked T waves.

TWIN-K-CI taken on an empty stomach in undiluted doses larger than 30 ml can produce gastric irritation with nausea, vomiting, diarrhea, and abdominal discomfort.

### OVERDOSAGE

The administration of oral potassium supplements to persons with normal kidney function rarely causes serious hyperkalemia. However, if the renal excretory function is impaired, potentially fatal hyperkalemia can result. It is important to note that hyperkalemia is usually asymptomatic and may be manifested only by an increased serum potassium concentration with or without EKG changes.

Treatment measures include:

1. Elimination of potassium containing drugs or foods.
2. Intravenous administration of 300 to 500 ml/hr of a 10% dextrose solution containing 10-20 units of crystalline insulin per 1000 milliliters.
3. Correction of acidosis.
4. Use of exchange resins or peritoneal dialysis.

In treating hyperkalemia, it should be noted that patients stabilized on digitalis can develop digitalis toxicity when the serum potassium concentration is changed too rapidly.

### DOSAGE AND ADMINISTRATION

The usual adult dosage is one tablespoonful (15 ml) in 6-8 fluid ounces of water or fruit juice, two to four times a day. This will supply 30 to 60 mEq of potassium ions and 8 to 16 mEq of chloride ions. The usual preventative dose of potassium is 20 mEq per day while therapeutic doses range from 30 mEq to 100 mEq per day. Because of the potential for gastrointestinal irritation, undiluted large single doses (30 ml or more) of TWIN-K-CI are to be avoided.

Deviations from this schedule may be indicated, since no average total daily dose can be defined, but must be governed by close observation for clinical effects.

HOW SUPPLIED Bottles of 1 pint (16 fl oz)

NDC 0524-0022-16

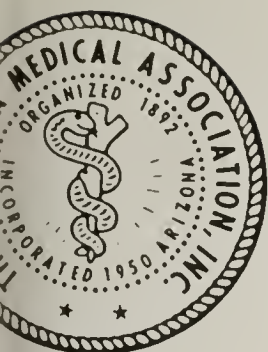
MANUFACTURED & DISTRIBUTED BY

**Boots Pharmaceuticals, Inc.**

Shreveport, Louisiana 71106

**Pioneers in Medicine For the Family**





# THE ARIZONA MEDICAL ASSOCIATION, INC.

## “SECURITY PACKAGE”

The key word in any insurance program is security. ArMA's Board of Directors, working with the Medical Economics Committee and ArMA staff, has sponsored carefully designed insurance programs placed with excellent companies. The set-up of the over-all administration and local servicing assures you of prompt and courteous service in the unhappy event that you or your family should have a claim. Programs with service you can count on: **That's Security.**

**Dean S. Davidson Insurance Agency, Inc.**, with over 40 years of experience in all lines of insurance (including several Arizona associations), and offices in Phoenix and Tucson, provides local service for all members. Should you need assistance at any time, trained personnel are available by phone or in person to assure efficient, thorough handling of your insurance programs.

**Southern California Agency** has been working with ArMA for almost 30 years. Its affiliate, **Health Agencies of the West, Inc.**, coordinates the full administration (marketing, underwriting, billing, and claims services) of all insurance programs. They are specialists in professional association group insurance, who provide the finishing touches to our “SECURITY PACKAGE”.

### Term Life Insurance

Underwritten by  
Fireman's Fund  
American Life Insurance Company



### Defendant's Reimbursement Insurance



underwritten by  
National Casualty Company

### Spouse Life Insurance

Underwritten by  
Lincoln American Life  
Insurance Company



### Professional Overhead Expense Insurance



underwritten by Occidental Life  
Insurance Company of California

### Disability Income Insurance

Underwritten by  
National Casualty Company



Administered by

### Accidental Death & Dismemberment Insurance



underwritten by  
Fireman's Fund  
American Life Insurance Company

## HEALTH AGENCIES OF THE WEST, INC.

*And Locally Serviced by*

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200  
Phoenix, Arizona 85016  
(602) 277-6672

630 Craycroft Road  
Tucson, Arizona 85711  
(602) 745-0793

**When painful spasm  
is the presenting  
symptom...**





# Single Entity Bentyl<sup>®</sup>

(dicyclomine hydrochloride USP)

10 mg. capsules, 20 mg. tablets, 10 mg./5 ml. syrup, 10 mg./ml. injection

## On target for the functional bowel/irritable bowel syndrome\*

### Single entity means

- ⊕ a variety of Bentyl dosage forms (tablets, capsules, syrup, injectable) that lets you tailor the dose to your patient's primary need
- ⊕ freedom to choose and titrate concomitant medication when a psychogenic disorder coexists

### On target means

- ⊕ bioequivalence of oral dosage forms that permits patient's choice—fosters patients' compliance
- ⊕ bioavailability of all dosage forms that encourages therapeutic effect
- ⊕ significant pharmacologic activity that can be demonstrated at the target site in the distal colon (Figure 1)

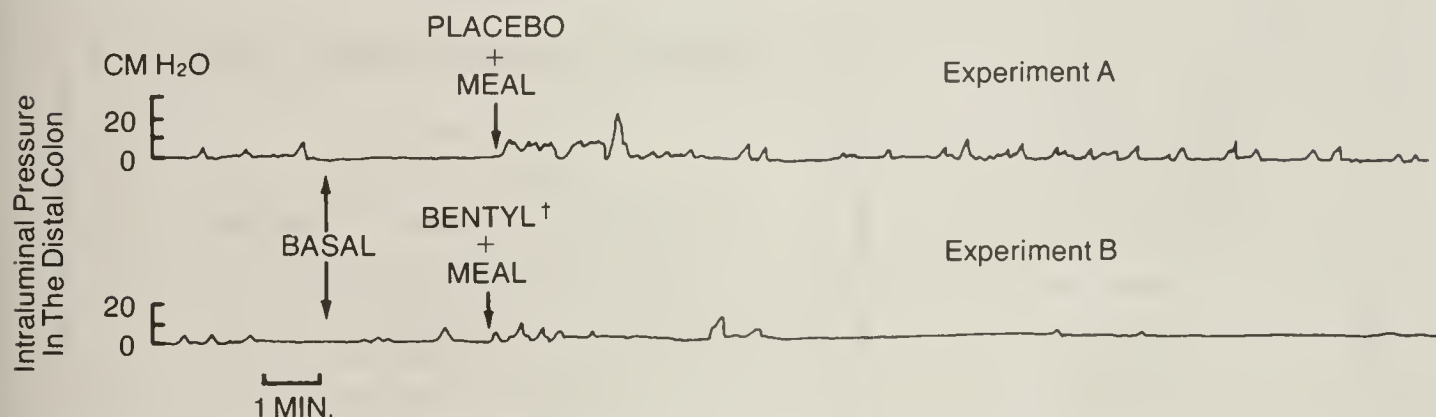


**Fig. 1.** In this irritable colon patient, the motility index for the colonic wave pattern shown in A, following a meal and intramuscular placebo, was calculated at  $86 \pm 28$ . On a separate day, the motility index for the colonic wave pattern seen in B, following a meal plus intramuscular Bentyl, was calculated at  $14 \pm 8$ . The decrease in motor activity induced by Bentyl was statistically significant ( $p < 0.05$ ), in spite of the wide range of the standard error of the mean.

from a Study by A. R. Chowdhury  
and S.H. Lorber, 1980

\*This drug has been classified "probably" effective for this indication.

†Although the dose of Bentyl used to show pharmacologic effect was 50 mg., which is a higher single dose than that permitted in the labeling, the dose was considered justified, since the recommended daily dose of injectable Bentyl is 20 mg. (2 ml.) every 4 to 6 hours. Thus, in 8 hours, a patient could receive a total of 60 mg. I.M. and, at that time, as a result of the sustained plasma levels from the 20 mg. injections at 0 and 4 hours, might show an even higher plasma level than occurs after a single 50 mg. dose. Presumably, the same pharmacologic effect, as shown in Figure 1, would follow. These observations do not constitute evidence of efficacy.

# Merrell

## Bentyl®

(dicyclomine hydrochloride USP)

Capsules, Tablets, Syrup, Injection  
AVAILABLE ONLY ON PRESCRIPTION  
Brief Summary

### INDICATIONS

Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the following indications as "probably" effective:

For the treatment of functional bowel/irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.

THESE FUNCTIONAL DISORDERS ARE OFTEN RELIEVED BY VARYING COMBINATIONS OF SEDATIVE, REASSURANCE, PHYSICIAN INTEREST, AMELIORATION OF ENVIRONMENTAL FACTORS.

For use in the treatment of infant colic (syrup).

Final classification of the less-than-effective indications requires further investigation.

**CONTRAINDICATIONS:** Obstructive uropathy (for example, bladder neck obstruction due to prostatic hypertrophy); obstructive disease of the gastrointestinal tract (as in achalasia, pyloroduodenal stenosis); paralytic ileus, intestinal atony of the elderly or debilitated patient; unstable cardiovascular status in acute hemorrhage; severe ulcerative colitis; toxic megacolon complicating ulcerative colitis; myasthenia gravis.

**WARNINGS:** In the presence of a high environmental temperature, heat prostration can occur with drug use (fever and heat stroke due to decreased sweating). Diarrhea may be an early symptom of incomplete intestinal obstruction, especially in patients with ileostomy or colostomy. In this instance treatment with this drug would be inappropriate and possibly harmful. Bentyl may produce drowsiness or blurred vision. In this event, the patient should be warned not to engage in activities requiring mental alertness such as operating a motor vehicle or other machinery or perform hazardous work while taking this drug. There are rare reports of infants, 6 weeks of age and under, administered dicyclomine hydrochloride syrup, who have evidenced respiratory symptoms (breathing difficulty, shortness of breath, breathlessness, respiratory collapse, apnea), as well as seizures, syncope, asphyxia, pulse rate fluctuations, muscular hypotonia, and coma. The above symptoms have occurred within minutes of ingestion and lasted 20 to 30 minutes. The timing and nature of the reactions suggest that they were a consequence of local irritation and/or aspiration rather than a direct pharmacologic effect. No known deaths or permanent adverse effects have been reported. Bentyl syrup should be used with caution in this age group.

**PRECAUTIONS:** Although studies have failed to demonstrate adverse effects of dicyclomine hydrochloride in glaucoma or in patients with prostatic hypertrophy, it should be prescribed with caution in patients known to have or suspected of having glaucoma or prostatic hypertrophy.

Use with caution in patients with:

Autonomic neuropathy. Hepatic or renal disease. Ulcerative colitis. Large doses may suppress intestinal motility to the point of producing a paralytic ileus and the use of this drug may precipitate or aggravate the serious complication of toxic megacolon.

Hyperthyroidism, coronary heart disease, congestive heart failure, cardiac arrhythmias, and hypertension.

Hiatal hernia associated with reflux esophagitis since anticholinergic drugs may aggravate this condition.

Do not rely on the use of the drug in the presence of complication of biliary tract disease. Investigate any tachycardia before giving anticholinergic (atropine-like) drugs since they may increase the heart rate. With overdosage, a curare-like action may occur.

**ADVERSE REACTIONS:** Anticholinergics/ antispasmodics produce certain effects which may be physiologic or toxic depending upon the individual patient's response. The physician must delineate these. Adverse reactions may include xerostomia; urinary hesitancy and retention; blurred vision and tachycardia; palpitations; mydriasis; cycloplegia, increased ocular tension; loss of taste; headache; nervousness; drowsiness; weakness; dizziness; insomnia; nausea; vomiting; impotence; suppression of lactation; constipation; bloated feeling; severe allergic reaction or drug idiosyncrasies including anaphylaxis; urticaria and other dermal manifestations; some degree of mental confusion and/or excitement, especially in elderly persons; and decreased sweating. With the injectable form there may be a temporary sensation of light-headedness and occasionally local irritation.

**DOSAGE AND ADMINISTRATION:** Dosage must be adjusted to individual patient's needs.

*Usual Dosage*

Bentyl 10 mg. capsule and syrup: *Adults:* 1 or 2 capsules or teaspoonfuls syrup three or four times daily. *Children:* 1 capsule or teaspoonful syrup three or four times daily. *Infants:* ½ teaspoonful syrup three or four times daily. (Dilute with equal volume of water.)

Bentyl 20 mg.: *Adults:* 1 tablet three or four times daily.

Bentyl Injection: *Adults:* 2 ml. (20 mg.) every four to six hours intramuscularly only.

NOT FOR INTRAVENOUS USE.

**MANAGEMENT OF OVERDOSE:** The signs and symptoms of overdose are headache, nausea, vomiting, blurred vision, dilated pupils, hot, dry skin, dizziness, dryness of the mouth, difficulty in swallowing, CNS stimulation. Treatment should consist of gastric lavage, emetics, and activated charcoal. Barbiturates may be used either orally or intramuscularly for sedation but they should not be used if Bentyl with Phenobarbital has been ingested. If indicated, parenteral cholinergic agents such as Urecholine® (bethanecol chloride USP) should be used.

Product Information as of July, 1980

Injectable dosage forms manufactured by  
CONNAUGHT LABORATORIES, INC.  
Swiftwater, Pennsylvania 18370 or  
TAYLOR PHARMACAL COMPANY

Oecatur, Illinois 62525 for  
MERRELL-NATIONAL LABORATORIES  
Division of Richardson-Merrell Inc.  
Cincinnati, Ohio 45215, U.S.A.

**Merrell**

0-6545 (Y080C) MNQ443

# a.e

## From One Specialist To Another...

We are proud to service the printing  
needs of Arizona's medical and  
pharmaceutical professions.

**ALLIED ENVELOPE  
& PRINTING, INC.**

# a.e

1323 East McDowell Road  
Phoenix, Arizona 85006  
258-5528

*Printed Envelopes/Letterheads/Medical Forms  
Prescription Pads/Carbonless Forms  
Emergency Service Available — Local Pick-Up & Delivery*

## Valley Prosthetics, Inc.

*announces that*

**Vernon H. Lehde**

**Certified Prosthetist—Orthotist**

has recently joined the staff of  
Valley Prosthetics with

55 years past experience, adding  
**Orthopedic Appliances**

to its other services of

**Artificial Limbs, Medical Equipment  
Rental and Handicab Service.**

**Telephone for appointment-894-0145  
734 E. Broadway, Tempe, Arizona**



# Another good reason to insure with **MICA** is YOUR policy limits for defense.

If your limits are exhausted, we are still your insurance company regardless how expensive the defense may be.

MICA will continue to defend claims or suits made against you even though the policy limits have been used up. Other malpractice insurers may not provide defense coverage after the policy limits have been exhausted.

**For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402**

**MICA MICA MICA**

**MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by the Arizona Medical Association.**



## The Dilemma of Atypical Abdominal Pain:

### A Case of Celiac Artery Stenosis

Edward B. Diethrich, M.D.  
H. Peter Hernried, M.D.  
Ravi Koopot, M.D.

Editor:  
Kenneth B. Desser, M.D.

Atypical abdominal pain is generally a perplexing diagnostic problem for the physician, particularly when routine investigation reveals no plausible cause for the pain. One clinical entity which has been described in the literature as responsible for abdominal anginal pain is celiac artery compression. Although atherosclerotic disease of the splanchnic vessels has long been recognized as a cause for abdominal pain,<sup>1,2</sup> extrinsic compression of the celiac artery as a source of pain was not reported until 1963.<sup>3</sup> Celiac artery compression is a rare condition. There is debate whether isolated stenosis of this vessel, by whatever mechanism, is sufficient to produce abdominal pain.<sup>4-9</sup> Some authors have described a median arcuate ligament syndrome, in which the celiac axis is compressed by the arcuate ligament, often in association with the celiac ganglion.<sup>5,7,8,10,11</sup> Surgical release of the artery has resulted in relief of symptoms in a great number of cases.

In the patient presented here, the celiac artery was found to be probably congenitally malformed. This case exemplifies the pain pattern and diagnostic difficulties which a physician may encounter in a young patient with atypical abdominal pain.

### Case Report

A 20-year-old Caucasian female was seen by the referring physician for recurring right lower quadrant pain of a five year duration. The pain pattern had become progressively severe, radiating down the right extremity and up into the epigastric region. The pain was intermittent, becoming more pronounced after ingestion of food. Moderate weight loss had been recently noted.

Physical examination revealed an apparently well young woman in some pain. The only abnormal physical findings included tenderness over the epigastrium and suprainguinal areas and, high in the epigastrium, a harsh bruit with systolic and diastolic components. This prompted an abdominal arteriographic series which demonstrated a tightly stenosed celiac artery (Figure 1) without evidence of other vascular pathology. Other sources of the postprandial pain were ruled out by negative results with barium enema, GI series, sigmoidoscopy, and a collagen vascular disorder work-up. This left the celiac artery stenosis as the only identifiable source of the pain. An operation to restore the celiac artery's flow was elected by the patient.

At operation, the celiac artery was located at its origin on the aorta through an upper midline incision. The stenosis at first appeared to be a result of the artery's entrapment by the arcuate ligament, but excision of the ligamentous material and dissection of the periarterial tissue failed to alleviate the stenotic condition. It was thought that the artery had probably been malformed at birth. Pressure gradients were taken between the aorta and the branches of the celiac axis. The greatest gradient, 40 mmHg, was found to exist in the hepatic artery. Since the stenosis did not involve the branches of the celiac artery, it was elected to revascularize the tissue fed by this arterial system by interposing a conduit around the stenotic area with a reversed saphenous vein graft from the aorta to the hepatic artery (Figure 2). By doing this, the pressure gradient disappeared and flow was restored to all branches of the celiac axis via direct and reverse flow.

The patient recovered satisfactorily from the operation. The symptoms associated with the stenotic condition were no longer apparent, and the patient remains well twenty-eight months after surgery.

### Discussion

Diagnosing the cause of intermittent or nonspecific abdominal pain poses a perplexing dilemma for the physician. Generally, most of the more usual tests have been run to rule out acute processes (intestinal obstruction, appendicitis, etc.), female disorders (ovarian disease, pelvic inflammatory disease, etc.), and digestive disorders (colitis, malabsorption syndromes, etc.). Blood studies and more exotic diagnostic procedures may then be undertaken in hopes of uncovering some rare syndrome. Usually, rather far down the list of ideas comes the vascular disorders and anomalies which just might precipitate such pain.

From: Section of Cardiovascular Surgery, Arizona Heart Institute, Phoenix, AZ (Drs. Diethrich and Koopot). St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013 (Dr. Hernried). Reprint requests to Dr. Diethrich, Arizona Heart Institute, P.O. Box 10,000, Phoenix, AZ 85064.





Figure 1

Lateral view of abdominal aortogram demonstrating a tightly stenosed celiac artery (arrow) at its origin with mild post-stenotic dilatation. No other vascular abnormalities were seen.

This case of celiac artery stenosis producing abdominal pain is extremely rare. The intermittent, postprandial pain in this young woman was a challenge to her primary physician, who recognized the significance of the epigastric bruit's diastolic component as indicative of an obstructive lesion.<sup>12</sup> When arteriography confirmed the stenotic lesion, it was thought due to arcuate ligament compression, an unusual syndrome first documented in the early 1960's. At operation, however, the standard excision of the ligament did not relieve the stenosis, so aortohepatic bypass grafting was required to establish adequate circulation to the largest branch of the celiac axis. Our impression was that the artery had been congenitally deformed, but fibromuscular hyperplasia or atypical atherosclerotic plaque could also explain the condition, although the latter is unlikely in a woman so young.

As for the contention that stenosis of a single visceral artery could not produce pain, the large pressure gradient we measured in this patient tends to indicate that her superior mesenteric artery was not adequate to provide collateralization even under anesthesia let alone under conditions of postcibal increased blood demand.

Although atypical abdominal pain attributable to a stenosed celiac artery will be encountered by only a



Figure 2

Diagram of the stenotic lesion (A) of the celiac axis and the positioning of the reversed saphenous vein aorto-hepatic bypass graft (B), which now supplies the celiac branches by direct and reverse flow.

handful of physicians, this case provides an excellent teaching tool. Intermittent abdominal pain ranks probably second only to the recurring headache as the most common and ill-defined complaint heard by the primary physician. The main objective when dealing with this type of patient is to obtain initially a truly definitive description of the pain pattern. From this data, the physician should then be able to direct the course of investigation, judiciously selecting the tests most capable of disclosing the pain's origin.

#### References

1. Stoney RJ, Wylie EJ: Recognition and surgical management of visceral ischemic syndromes. *Ann Surg* 164:714-21, 1966.
2. Sabiston DC Jr: Visceral ischemic syndrome: Obstruction of the superior mesenteric, celiac, and inferior mesenteric arteries. In: *The Heart*, Hurst JW (ed), 4th ed., McGraw-Hill, New York, 1979, p. 1716.
3. Harjola PT: A rare obstruction of the celiac artery. *Ann Chir Gynaecol Fenn*, 52:547-50, 1963.
4. Siegel AJ, Mannick J: Celiac artery stenosis. *Ann Intern Med*, 86:825-6, 1977.
5. Watson WC, Sadikali F: Celiac axis compression. Experience with 20 patients and an initial appraisal of the syndrome. *Ann Intern Med*, 86:278-84, 1977.
6. Sleisenger MH: The celiac artery syndrome-again? *Ann Intern Med*, 86:355-6, 1977.
7. Mihas AA, Laws HL, Jander HP: Surgical treatment of the celiac axis compression syndrome. *Am J Surg* 133:688-91, 1977.
8. Edwards AJ, Hamilton JD, Nichol WD, et al: Experience with coeliac axis compression syndrome. *Brit J Med* 1:342-5, 1970.
9. Drapanas T, Bron KM: Stenosis of the celiac artery. *Ann Surg* 164:1085-7, 1966.
10. Stanley JC, Fry WJ: Median arcuate ligament syndrome. *Arch Surg*, 103:252-7, 1971.
11. Garvin PJ, Sawyer O, Cabal E, et al: Malabsorption and abdominal pain secondary to celiac artery entrapment. *Arch Surg*, 112:655-7, 1977.
12. Watson WC, William PB, Duffy G: Epigastric bruits in patients with and without celiac axis compression. *Ann Intern Med*, 79:211-5, 1973.



*Seminars in  
Endocrinology and  
Metabolism*

## **Ectopic Hormone Production**

### **Newer Perspectives**

Stephen E. Dippe, M.D., F.A.C.P.

Editor:  
Stephen E. Dippe, M.D.

Normally, specific tissues in the body respond to appropriate stimuli by the releasing of hormones. Early clinical observations suggested that certain cancers produced clinical syndromes similar to those seen with endocrine tumors. With the advent of the radioimmunoassay, we now know that these tumors are producing hormones. Initially, it was unclear why these tumors produced hormones, but through extensive cytogenetic and cytochemical determinations these tissues are related to normal hormone-producing tissues and retain the capability of hormone production. Embryologically, many of these cells are derived from similar cell lines. When these non-hormone secreting cells undergo malignant changes, the ability to produce hormones is unmasked.

To complicate matters further, the hormone produced may be an incomplete hormone and have no clinical significance but nonetheless it can be detected by specific radioimmunoassay or, it may be biologically active yet below the sensitivity of current radioimmunoassays. Finally, some sites may normally produce a minute quantity of a hormone but when those sites become malignant, the level of hormone production becomes rather substantial and thus abnormal.

Therefore, with our present state of knowledge, it is

best to define ectopic hormones as "hormones manufactured by tissues that do not produce those hormones under normal circumstances."

#### **Ectopic ACTH**

Approximately fifty percent of the ectopic ACTH producing tumors are lung tumors. Of these, most are small or oat cell carcinomas. Other less common sites include carcinoid and tumors of the thymus, pancreas and thyroid. These tumors may not produce the complete ACTH molecule and, therefore, may not be associated with the usual signs and symptoms of Cushing's syndrome. Also, if the tumor producing the biologically-active ACTH is growing rapidly, the physical findings of Cushing's disease may be absent. There simply is not time for the physical features to develop before the cancer is discovered. Many of the biochemical abnormalities are present, such as elevations of serum cortisol levels and urinary steroids. In addition, they may have hyperglycemia, hypertension, elevations of the polymorphic leukocytes and suppression of lymphocytes. In some, neither biochemical nor clinical evidence of Cushing's syndrome can be found in patients with ectopic ACTH production, but at autopsy tissue analysis has shown high concentrations of ACTH.

#### **Ectopic Gonadotrophins**

Gonadotrophins contain two glycosylated peptide chains called alpha and beta subunits. The alpha subunit



seems to be a constant product in FSH, LH and human chorionic gonadotrophin (HCG). The beta chain contains the biological and immunological properties of the hormone. However, neither subunit alone has biological activity.

Recent radioimmunoassay studies have been able to selectively distinguish human chorionic gonadotrophin from LH. The result of this advance has been that we now are fairly certain that most cases of excessive gonadotrophin production from an ectopic source is predominantly HCG. The frequency of HCG production ectopically is quite astonishing. For example, one study has found that of 828 cancer patients excluding those with testicular and trophoblastic carcinomas, 60 had detectable levels of HCG in their plasma. Gastrointestinal neoplasms likewise show high levels of HCG on occasion. Large cell undifferentiated carcinomas of the lung, adrenal and renal cancers have also been known to produce elevated levels of HCG.

The clinical correlates of excessive HCG production may range from nothing to gynecomastia. In women there may be irregular menstrual bleeding, but for the most part the symptoms are negligible. Because there may still be some cross-reactivity between measurements of serum LH and HCG when clinical suspicion of an HCG-secreting ectopic tumor is high, specific radioimmunoassay for the beta subunit of HCG is available and should be ordered.

#### **Ectopic Calcitonin**

Calcitonin is produced by the C cells of the thyroid gland. The function of calcitonin is primarily to maintain a normal calcium level by lowering it. Ectopic production of calcitonin has been reported in patients with lung cancer, breast malignancies and many GI neoplasms. Unfortunately, although a chemical marker of an underlying malignancy, elevated calcitonin levels do not produce any significant biochemical abnormalities in afflicted patients.

#### **Ectopic Parathyroid Hormone**

Squamous cell carcinoma of the lung and renal cancer are the most common producers of ectopic PTH. Hypercalcemia in cancer patients is very common, but in only a few is it due to ectopic production of PTH. There are many other causes for hypercalcemia in malignancy. This diagnosis should be considered in patients without discrete evidence of malignancy that have high levels of calcium. During the workup for non-malignant hypercalcemia, IVP's are frequently done. If an IVP suggests a tumor, the likelihood of a hypernephroma producing PTH should be considered. These patients will often have symptoms of hypercalcemia.

#### **Ectopic Somatostatin**

Somatostatin has created considerable interest in the medical literature because of its many properties. It is found in the thyroid, gastrointestinal tract, pancreatic islet cells, hypothalamus and brain. Somatostatin inhibits secretion of many pituitary, gastrointestinal and pancreatic hormones. It is no longer thought of as simply

a growth hormone inhibitory hormone. The clinical manifestation of excessive somatostatin is not well known nor are the physical findings well represented. Islet cell tumors frequently produce somatostatin but may not be a true ectopic-producing site.

#### **Hypoglycemia**

A true ectopic hormone causing hypoglycemia has been difficult to prove or disprove. There are many reports of patients with very large neoplasms having hypoglycemia. These tumors are frequently described as the retroperitoneal tumors, but only 24% have been shown to exist there, whereas 40% occur in the peritoneal cavity and pelvic area and 36% within the thorax. The exact reason these patients have hypoglycemia is still in question, but levels of immunoreactive insulin in these tumors have been found to be low.

Hepatomas present a slightly different picture. Hypoglycemia can occur from severe liver destruction because of the inability to maintain adequate glucose production. In certain slow-growing, well-differentiated hepatomas hypoglycemia may occur prior to the development of symptoms from the liver cancer.

Other tumors including anaplastic carcinomas, adenocarcinomas of the stomach and colon, lymphomas, and leukemia have been associated with hypoglycemia. The cause of hypoglycemia in these disorders is not related to the ectopic production of insulin. Why most of these tumors produce hypoglycemia is still in question. An insulin-like material has been postulated to cause hypoglycemia. For certain hepatomas, somatomedin is produced excessively, has an insulin-like activity and may be a cause of hypoglycemia. However, most cases of hypoglycemia associated with a malignancy are not yet related to a well-defined ectopic hormone syndrome.

#### **Vasopressin (ADH)**

Patients with the Syndrome Inappropriate Antidiuretic Hormone (SIADH) present with hyponatremia, hypervolemia, inappropriately high urinary osmolality and high urinary sodium concentrations early in the course of the disease. Many of the patients suffer from carcinoma of the lung. Many other tumors such as prostate, adrenal cortex, Hodgkin's disease, pancreas, and bladder are associated with ectopic ADH production. SIADH also occurs in many non-malignant disorders and in association with various medications.

#### **Summary**

Ectopic hormone syndromes can have clinical presentations as diverse as gynecomastia and hypercalcemia. Early recognition may lead to an undetected neoplasm. The measurement of hormones can serve as tumor markers in evaluating cancer therapy. Finally, as radioimmunoassays improve, the detection of incomplete hormones that cause no clinical states may assist in the early detection of malignancies.

*Supported in part by the Edyth Bush Charitable Foundation, Inc.*



## Esophageal Scleroderma

Steven R. Kanner, M.D.

Editors:

George Burdick, M.D.

Stephen Glouberman, M.D.

Steven R. Kanner, M.D.

Motor disorders of the esophagus are seen with various collagen diseases including systemic lupus erythematosus, polymyositis, Raynaud's disease, and scleroderma. Of this group scleroderma is the one in which esophageal dysmotility is seen most often, with a frequency of at least eighty percent. The occurrence of esophageal involvement with scleroderma correlates best with the presence of Raynaud's phenomenon. Indeed, the presence of Raynaud's with other connective tissue diseases seems to correlate with the occurrence of esophageal motor disorders. The basic motor abnormality of the esophagus in scleroderma is marked reduction in lower esophageal sphincter tone and a decrease in peristalsis in the lower two-third of the esophagus.

### **Pathology and Pathophysiology**

The pathologic features of esophageal scleroderma include primarily the atrophy of the smooth muscle and collagen deposition in the connective tissue along with fibrosis of the intima of small blood vessels in the esophagus. In addition, there is damage to the neurogenic plexuses in the esophagus. While the smooth muscle in the lower two-third of the esophagus is atrophied, the striated muscle in the upper one-third of the esophagus is unaffected.

The etiology for esophageal scleroderma is unknown. It is suspected that because of the close association with

Raynaud's, the abnormality may occur because of vascular spasm with resulting hypoxic injury.

### **Symptoms**

Symptoms of esophageal scleroderma are basically the same as those which occur in other patients with gastroesophageal reflux except that symptoms are frequently more severe and dysphagia is more prominent. In addition, the incidence of stricture formation is much higher than that seen in patients with reflux esophagitis unassociated with scleroderma. The severity relates to the severe underlying motor disorder, i. e. virtual absence of the lower esophageal sphincter and lack of effective peristalsis to clear the acid which has refluxed into the esophagus. As with the patients with reflux esophagitis, the symptoms are frequently aggravated by eating and are particularly likely to be worse with the patient supine. Also similar to reflux esophagitis is the relief of symptoms with antacids.

### **Diagnosis**

The tests most useful for evaluation of esophageal scleroderma include barium esophagogram, endoscopy, and esophageal manometry. Radiographic findings seen in esophageal scleroderma include reflux, evidence of esophagitis, and occasionally stricture formation. However, these findings do not differentiate esophageal scleroderma from other cases of reflux esophagitis. The most characteristic radiographic feature of scleroderma is the absence of peristalsis in the lower two-third of the esophagus. This abnormality is best evaluated with the patient either prone or head down. Because of the



absence of peristalsis, esophageal emptying is obviously prolonged. X-ray is significantly less reliable in detecting involvement of the esophagus by scleroderma than esophageal manometry. Endoscopy is useful in patients with scleroderma who complain of dysphagia to assess the severity of esophagitis as well as to evaluate for stricture. Frequently the esophagitis will be rather severe, characterized by marked mucosal friability and diffuse ulceration.

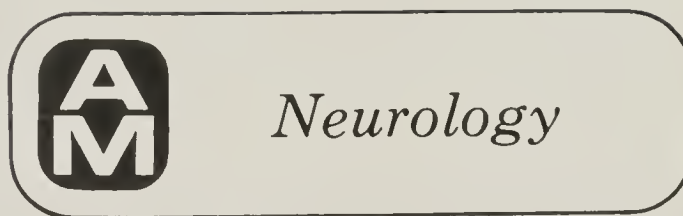
Esophageal manometry as noted above, is the most accurate method to evaluate esophageal motor function. The characteristic findings on esophageal manometry are absence of esophageal peristalsis in the lower two-third of the esophagus associated with absence of a demonstrable lower esophageal sphincter. Occasionally, rather than the typical manometric findings described above, one will demonstrate loss of peristalsis but normal LES function. The upper esophageal sphincter functions normally in scleroderma. Although the findings of absence of peristalsis in the lower two-third of the esophagus and absence of a demonstrable lower esophageal sphincter are rather characteristic for scleroderma, these abnormalities have been reported to rarely occur in cases of severe esophagitis without underlying scleroderma. In these rare cases, peristalsis returned after effective treatment of esophagitis.

#### **Treatment**

Treatment for esophageal scleroderma is essentially the same as for usual reflux esophagitis. This includes frequent antacids and an antireflux regimen, including avoidance of lying down after eating and overeating, elevation of the head of the bed, etc. Peptic strictures are treated with bougienage. Metoclopramide, an agent not yet available in oral form in the United States, may prove to be useful with sclerodermatous involvement of the esophagus. While it has not been shown to effectively resolve the weakness of the lower esophageal sphincter in scleroderma, it may prove to be useful by increasing acid clearance from the esophagus as well as by increasing gastric emptying. Anti-reflux surgery should generally only be considered as the very last resort. While these operations can effectively decrease reflux, it also can result in severe dysphagia because of the absence of effective peristalsis in the sclerodermatous esophagus.

#### **Summary**

Esophageal involvement is a common accompaniment of scleroderma, best associated with the incidence of Raynaud's phenomenon. Esophageal scleroderma is characterized by weakness or absence of the lower esophageal sphincter along with absence of effective esophageal peristalsis in the lower two-third of the esophagus. As a result of this motor disorder, severe esophagitis frequently occurs. Treatment for esophagitis occurring with esophageal scleroderma is essentially the same as treatment of reflux esophagitis not associated with scleroderma. However, because of the absence of effective peristalsis, surgical treatment is used generally only as a last resort.



## **McArdle's Disease**

Janet A. Johnson, M.D.  
Lawrence Z. Stern, M.D.

#### **Editors:**

James Frey, M.D.  
Barry Hendin, M.D.  
Lawrence Stern, M.D.

McArdle's disease is a disorder of glycogen metabolism characterized by muscle pain and cramps on strenuous exercise sometimes followed by passage of dark urine. It was the first myopathy for which a specific enzymatic defect was discovered. In 1951 Brian McArdle reported a thirty year old man who complained of severe muscle pain on exercise and who, if he continued to exercise, developed weakness and stiffness. McArdle presumed he had a defect in muscle glycogen breakdown because of a failure of blood lactate level to rise on exercise, but it was not for another eight years before the specific deficiency of myophosphorylase was discovered by two independent teams of investigators.<sup>2-3</sup> The disorder is inherited, but, while either sex may be affected, the predominance of males has not yet been explained. Since its identification almost thirty years ago, only about seventy cases have been reported. We recently evaluated a patient whom we believe to be the first recognized case of McArdle's disease in Arizona.

VF is a 56 year old woman who presented to the Mucio F. Delgado Clinic for Neuromuscular Disorders with a history of muscle aching, cramping, and "locking" after exercise with onset in childhood. Usually ten minutes of

From: Department of Neurology University of Arizona Health Sciences Center, Tucson, Arizona 85724. Reprint requests to Lawrence Z. Stern, M.D., University of Arizona Health Sciences Center, Tucson, Arizona 85724.

This work was supported, in part, by a grant from the Muscular Dystrophy Association and by the Edward and Florence Watz Neuromuscular Research Fund.

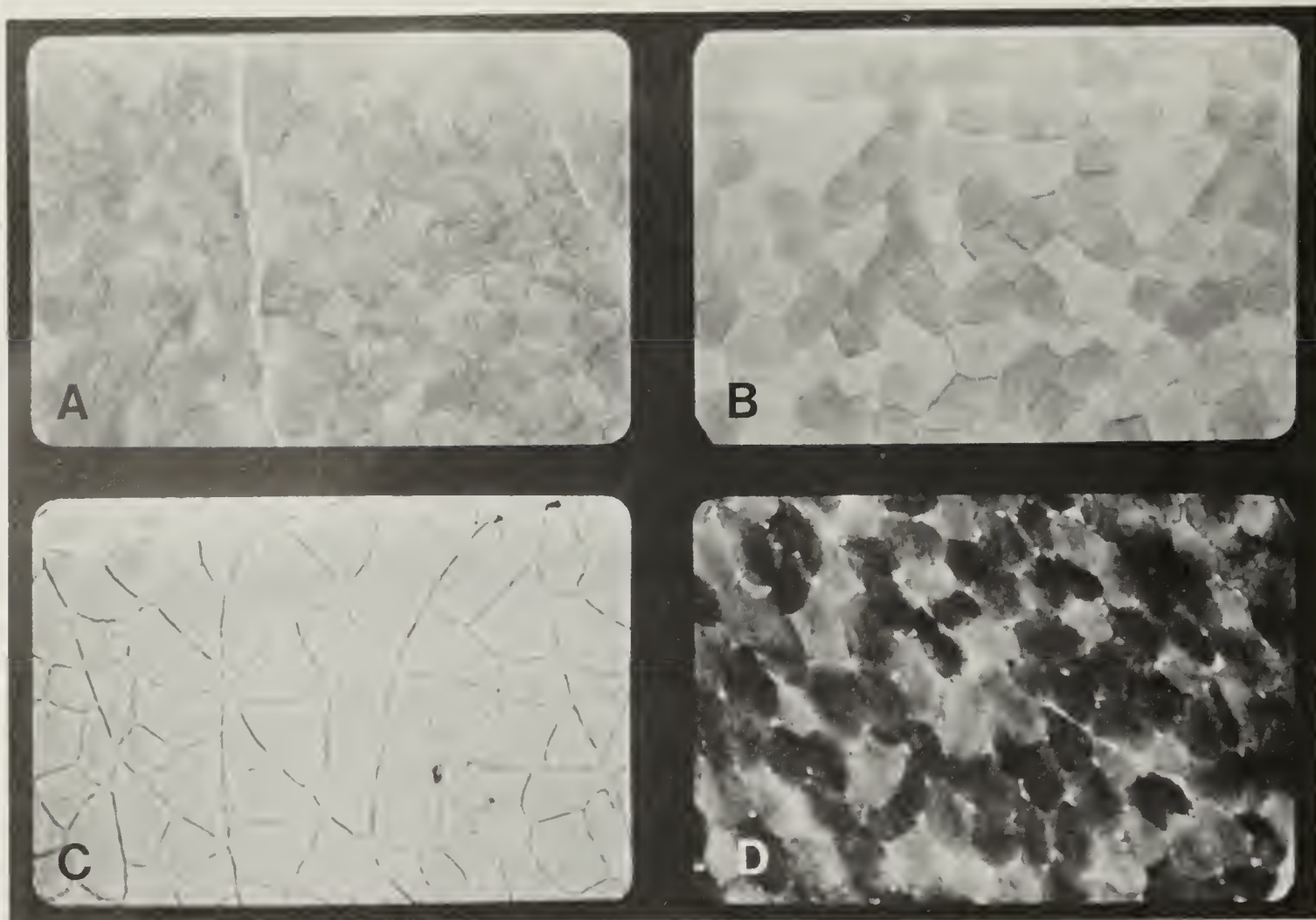


**Figure 1**

Frozen transverse sections of vastus lateralis muscle biopsies from patient VF (A and C) and a normal control subject (B and D). A and B are stained using the periodic acid-Schiff (PAS) technique for glycogen. A shows some increase in PAS positive material which was removed with diastase digestion. C and D are stained for phosphorylase and show no activity in B compared to the normal reaction pattern in D. (Original magnification 100X).

activity is sufficient to produce her symptoms and they are relieved by rest. Her presentation to the clinic was prompted by a more severe episode: while attempting to climb one flight of stairs out of a cellar, her legs became weak and locked, necessitating her being carried up the rest of the stairs. Her legs remained sore for several days but the weakness resolved in several minutes.

She offered many other somatic complaints which she related to stress, including acute episodes of anxiety and shortness of breath and paresthesias in her extremities and around her mouth. She also complained of some difficulty sleeping. The only medication she took was hydrochlorothiazide for mild hypertension.

General and neurologic examination were normal except for mild tenderness over both trapezius muscles after testing shoulder girdle musculature.

Laboratory examination revealed a sedimentation rate of 35 millimeters per hour and serum creatine kinase of 2085 international units. Thyroid tests were normal. An ischemic lactate test showed no rise in venous serum lactate with ischemic exercise. During the test, she developed severe pain and cramping of her forearm musculature, so the test had to be terminated early. The patient underwent an electromyogram and right common peroneal motor nerve conduction

velocity, which were normal.

A muscle biopsy was performed and studied using histochemical techniques (Figure 1). The morphology was normal except for a few scattered subsarcolemmal blebs of PAS positive material and an overall moderate increase in PAS positive material which was removed with diastase digestion, suggesting glycogen storage. When run along with a control, the patient's muscle showed no phosphorylase activity except for traces around blood vessels, whereas the control showed a normal reaction pattern.

This patient's history is in many ways typical for McArdle's disease. Although her symptoms had started in childhood, there had been little progression. She generally knew what limits to place on her activity, and was able to have an almost normal lifestyle. In light of the multiple non-specific complaints and normal physical examination she presented with, it is not surprising diagnosis of her disorder was delayed until her sixth decade.

Although the above presentation may be typical, the range of the clinical aspects of the disease are worth noting. The youngest case reported was that of a four week old infant who had a rapidly fatal course.<sup>4</sup> At the other end of the spectrum are cases with totally new



onset of symptoms in their sixties. Close to 95%, however, will have onset before age 20. A little over half the patients will have experienced myoglobinuria after an episode of strenuous exercise, usually the first time in their teen's or twenties. Other symptoms occurring with exercise include tachycardia, dyspnea, and early exhaustion. Stressed muscles may swell and remain sore for several days. Some patients also describe a second wind effect. When they begin to develop symptoms with moderate exercise, they slow down but continue the activity, then they can "work out" the pain and stiffness and continue. Exercise tolerance also varies from day to day and is somewhat related to the emotional state of the patient at that time.

On examination, most patients appear to have normal muscle bulk and strength, with less than 25% of patients showing proximal weakness or atrophy. Many of these latter individuals have been older patients, but a definite correlation of myopathy to age is still debated.

Slightly over half of patients will have a positive family history, and there is a distinct prevalence for males to be affected. In most families, an autosomal recessive transmission is suggested, with only a few families appearing to have an autosomal dominant mode of inheritance. Because fetal tissues and fibroblasts do not express the enzymatic defect, prenatal diagnosis is not possible.<sup>5-6</sup>

Other abnormalities are not common. There has been one report of mental retardation,<sup>7</sup> four of grand mal seizures,<sup>8-11</sup> and two of possible cardiac involvement.<sup>12-13</sup>

Certain laboratory tests are of great benefit in making the diagnosis. Serum creatine kinase is a valuable screening test because it is elevated in over 90% of cases.<sup>14</sup> An ischemic lactate test is more specific than other non-invasive tests but is still not diagnostic. For this test, a basal venous lactate level is drawn and a sphygmomanometer is then placed around the arm and inflated to above arterial pressure. The patient then exercises the arm for one minute, by squeezing another rolled up sphygmomanometer cuff as vigorously as possible. The constricting cuff is released, and further lactate levels are drawn at one, three and five minutes. In normals, there will be a three to five fold rise of lactate over basal level at one minute which returns towards pre-exercise levels. McArdle's patients will have a flat curve. This test causes considerable pain for the affected individual, which is usually paralleled by a rise in serum creatine kinase.

Routine electromyography is normal in the majority of patients. If a peripheral nerve is stimulated supramaximally, however, a contracture with characteristic electrical silence may develop. Furthermore, in those patients with fixed weakness, myopathic abnormalities such as early full interference pattern and low amplitude polyphasic potentials, can be seen. Nerve conduction velocities are normal.

Muscle biopsy with availability of specific histochemical techniques is necessary for definitive

diagnosis. Subsarcolemmal PAS positive blebs which are removed by diastase digestion are characteristic of glycogen storage. A few degenerating or regenerating fibers can also be found, particularly if the patient has recently had strenuous exercise. Histochemical stains for phosphorylase will reveal absence of enzyme from muscle fibers with preservation in vessel walls.

Biochemical tests have revealed a heterogeneity in the myophosphorylase enzyme. It can be immunologically present but enzymatically inactive or absent by both criteria.

Attempts at treatment of McArdle's disease have usually been based on supplying alternate energy sources or attempting to by-pass the block in muscle glycogenolysis. Glucagon has been used to stimulate liver production of glucose. Fructose has been used as an alternate energy source. Phenformin and other drugs which increase free fatty acids have also been tried. There have been no consistent improvements in exercise tolerance by any of these methods. Most patients find the side-effects more troublesome than continuing to limit their activity level.

Prognosis is good for the vast majority of patients. Most are able to stay within the limits set by the disorder. Exceptions to this are the minority of patients who have had life-threatening myogloburina and renal damage, or have a progressive myopathy associated with the disorder. Also, possibly other patients with onset in the neonatal period will have a downhill course.

In conclusion, McArdle's disease is a disorder of the breakdown of muscle glycogen caused by absence of enzymatically active myophosphorylase. It is an uncommon disorder but is probably frequently misdiagnosed. The patient usually complains of long-standing muscle aches and pains on exertion which may vary from day to day. A more specific complaint of the muscles "freezing" or "locking" with exercise is indicative of the characteristic contracture a muscle develops when its energy supply is exhausted. Serum creatine kinase and ischemic lactate tests are useful screening techniques. Definitive diagnosis rests on the determination of absent myophosphorylase in a muscle biopsy specimen.

#### References

1. McArdle B: Myopathy due to a defect in muscle glycogen breakdown. *Clin Sci*, 10:13-33, 1951.
2. Mommaerts WFHM, Illingworth B, Pearson CM, Guillory RJ, Seraydarian K: A functional disorder of muscle associated with absence of phosphorylase. *Proc Nat Acad Sci* 45:791-797, 1959.
3. Schmid R, Mahler R: Chronic progressive myopathy with myogloburina: Demonstration of glycogenolytic defect in the muscle. *J Clin Invest* 38:2044-2058, 1959.
4. Di Mauro S, Harlage PL: Fatal infantile form of muscle phosphorylase deficiency. *Neurology (Minneapolis)* 28:1978.
5. Dreyfus JC, Alexandre Y: Immunological studies on glycogen storage of diseases, Type III and V. Demonstration of the presence of an immunoreactive protein in one case of muscle phosphorylase deficiency. *Biochem Biophys Res Comm*, 44:1364-1370, 1971.

6. Di Mauro S, Rowland LP, Millman WJ: Glycogen metabolism of human diploid fibroblast cells in culture. I. Studies of cells from patients with glycogenosis types II, III, and V. *Pediat Res* 7:739-744, 1973.
7. Mahmud MZ, Howell RR, Stevenson Re, Gilroy J: Myophosphorylase deficiency (McArdle's disease): Report of a family. *Canad J Neurol Sci* 3:175-179, 1976.
8. Salmon SE, Turner CE: McArdle's disease presenting as convulsion and rhabdomyolysis. *Amer J Med* 39:142-146, 1965.
9. Salter RH, Adamson DG, Pearce GW: McArdle's syndrome (myophosphorylase deficiency) *Quart J. Med* 36:565-578, 1967.
10. Grunfeld JP, Ganeval D, Chanard J, Fardeay M, Dreyfus JC: Acute renal failure in McArdle's disease. *N Engl J Med* 286:1237-1241, 1972.

11. Farmer TW: Glycogenosis due to deficiency of muscle phosphorylase: Recurrent myoglobinuria precipitated by grand mal convulsions. In: *Clinical Studies in Myology* B A Kakulas (ed), Amsterdam Excerpta Medica, 70-74, 1973.
12. Ratnova G, Baker WP, Swaiman KF: McArdle's syndrome with previously unreported electrocardiographic and serum enzyme abnormalities. *Ann Intern Med* 62:328-335, 1965.
13. Mastaglia FL, McCollum JPK, Larson PF, Hudgson P: Steroid myopathy complicating McArdle's disease. *N Neurol Neurosurg Psychiat* 111-120, 1970.
14. Di Mauro S: Metabolic Myopathies. In: *Handbook of Clinical Neurology* Vinken PJ and Bruyn GW (eds), Amsterdam, p. 185.



## Nutrition

# Nutrition and the Elderly Patient

Gail G. Harrison, Ph.D., R.D.  
E E Fung, M.S., R.D.

Editors:  
Gail G. Harrison, Ph.D.  
David L. Earnest, M.D.

## Introduction

Attention to nutritional assessment and nutritional support is crucial in geriatric medicine. The elderly patient is, as a rule, more vulnerable to nutritional deficiency than is the younger adult for a variety of reasons. Low energy needs may make it difficult or impossible to meet all nutrient requirements from food intake. A number of social, environmental and physical factors may interfere with the process of obtaining and ingesting an adequate diet. Older patients are often users of multiple drugs, both prescribed and nonprescribed; thus the complex interactions which occur between food, nutritional status and drugs are likely to be significant for a large proportion of the elderly population. Finally, older individuals typically have much less than younger adults in the way of nutrient reserves; therefore, they require prompt attention to nutrition when illness or accident strikes. The physician treating the elderly patient needs a working knowledge of the unique nutritional problems

of this age group. In this article, we will attempt to provide a brief overview of nutritional needs in the elderly adults, interactions of food and drugs which are of clinical importance, and guidelines for nutritional support of the elderly patient who is under the stress of illness or injury.

## Nutritional Needs of the Elderly

Several physiological and biochemical changes occur with aging which affect nutritional needs, food intake, and utilization of nutrients. Changes in body composition and the usually significant decrease in physical activity of the older adult may result in a drastically decreased requirement for energy. The basal metabolic rate per unit of body surface area decreases by fifteen to twenty percent between the ages of thirty and ninety, reflecting decreased lean body mass and skeletal mass and a larger proportion of body mass as adipose tissue. Reduction in nutrient reserves, changes in the oral cavity and the gastrointestinal tract, and the prevalence of chronic disease also may jeopardize the nutritional status of the elderly.

In general, the elderly are characterized by a wider range of inter-individual variability in nutrient requirements than any other age group. The Recommended Dietary Allowances may need to be modified in assessing the needs of the elderly individuals with different activity levels, disease patterns, drug regimens, and environmental stresses. Recommended Allowances for energy intake in adults are seen in Table 1. Notice the very wide range of energy intakes appropriate within the age groups noted. Protein, vitamin, and mineral needs (except for iron in women) are not known to decrease with age. An across-the-board reduction in food intake to a level appropriate to the older individual's reduced energy needs may lead to inadequate nutrient intakes. The basic principle underlying geriatric nutrition is that the nutrient density of the diet must be greater than that for younger adults if the diet is to be adequate.

From: Department of Family and Community Medicine, College of Medicine, University of Arizona, Tucson, Arizona 85724



The frequency of significant malnutrition among the aged in the United States is estimated by several investigators to be of the magnitude of five to ten percent. The most common form is subclinical nutritional deficiency, usually involving multiple nutrients, characterized by biochemical evidence of reduced tissue levels and/or nutrient dependent functions. Though dietary surveys do not indicate consistent evidence of severe deficiencies, several nutrients are frequently marginal or low in the diets of healthy, elderly people. Some recommend a multi-vitamin supplement daily for the elderly as safe and desirable while others maintain that it is more reasonable to administer vitamin therapy on the basis of documented individual needs. When a multi-vitamin supplement is prescribed for the healthy elderly patient, it should include those elements most likely to be inadequate in the diet (calcium, magnesium, zinc, chromium, folic acid, vitamin A, thiamine, riboflavin, vitamin C, and/or perhaps fluoride). Iron should *not* be included unless specifically indicated by some factor which increases iron needs (such as gastric achlorhydria), since iron needs in this age group are low and development of microcytic anemia in an elderly person is often the first warning sign of occult bleeding indicative of serious underlying disease. Since self-medication with nutritional supplements is common and serious toxicities are associated with some vitamins and minerals, careful patient education is indicated.

#### **Some Factors Associated with Malnutrition of the Elderly**

It has been estimated that one-third to one-half of the health problems experienced by older individuals are directly or indirectly related to nutrition. Cause and effect are often difficult to sort out, but often nutrition offers an effective intervention point for supportive and/or curative care. Approximately three-quarters of the non-institutionalized elderly have one more chronic illnesses. Chronic disease may affect nutritional adequacy through the long-term use of therapeutic diets, physical limitation associated with feeding, altered nutrient needs and/or nutrient metabolism. Decreased food intake due to physical, social, economic, and psychological limitations may precipitate malnutrition, exacerbate stress and prolong recovery from illness and injury. Most gastrointestinal disorders occur at higher rates in older persons, and constipation is found nearly three times as frequently as in the middle-aged population. Some geriatricians believe that overweight among older persons is a greater problem than undernutrition, but recent evidence indicates that moderate degrees of overweight do not constitute a health hazard in this age group.

#### **Interactions of Drugs and Nutrition in the Elderly**

Many drugs affect nutrient intake, functions, and/or requirements; nutritional intake and nutritional status may modify drug metabolism and action. The elderly are especially vulnerable to adverse effects of these

**Table 1**  
**Recommended Energy Intake for Adults**

| Age<br>(years) | Energy Needs (with range)<br>(kilocalories) |
|----------------|---------------------------------------------|
| Males          |                                             |
| 23 - 50        | 2700 (2300 - 3100)                          |
| 51 - 75        | 2400 (2000 - 2800)                          |
| 76 +           | 2050 (1650 - 2450)                          |
| Females        |                                             |
| 23 - 50        | 2000 (1600 - 2400)                          |
| 51 - 75        | 1800 (1400 - 2200)                          |
| 76 +           | 1600 (1200 - 2000)                          |

*Recommended Dietary Allowances*, Ninth Edition Food and Nutrition Board, National Academy of Sciences/National Research Council, Washington, D. C., 1980.

interactions because they are, as a group, chronic users of multiple drugs and exhibit greater individual variation in response to drugs than any other age group. Further, many elderly persons consume marginal diets and/or suffer from chronic disease which leads to marginal or inadequate nutritional status.

Drug-induced nutrient deficiencies occur most often in long-term drug users. Aside from general interference with food intake, the most commonly seen drug-induced nutrient deficiencies are those reflecting interference with absorption and utilization of vitamin B<sub>6</sub>, folate and pyridoxine. Commonly implicated drugs include colchicine, L-dopa, anticonvulsants and corticosteroids. Thiamine and calcium deficiencies may be induced in long-term antacid users. Laxatives and cathartics may be implicated in malabsorption of fat-soluble vitamins, calcium and potassium. Depletion of calcium and even osteomalacia can result from long-term intake of anticonvulsants, glucocorticoids, and certain diuretics. See Table 2 for a summary of some of the clinically important effects of drugs on nutritional status.

Several measures can be adopted by the physician to prevent or control drug-induced malnutrition. These include limitation of multiple drug regimens whenever possible, careful patient education, monitoring of nutritional status and prescription of appropriate nutritional supplements with specific medications. Since over-the-counter drugs (including analgesics, laxatives and alcohol) are commonly implicated in drug-induced malnutrition, care of the geriatric patient requires thorough history and patient education in this area.

Specific dietary components and patterns may interfere with drug absorption or action. Concurrent administration of foods can delay the rate of absorption of certain weakly basic drugs and enhance the rate and extent of absorption of those which are acidic. In the elderly patient under chronic therapy, the delay in onset of action is not as important clinically as the enhancement. An awareness of the potential

Table 2

| Drugs                                                                      | Nutrients                                                                                                   | Mechanisms                                                                                                           |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Alcohol: in excess of 20% kcal                                             | Folates<br>Thiamin<br>Vitamin B <sub>6</sub><br>Zinc and magnesium                                          | ↓absorption and utilization<br>↓need, ↓absorption<br>↓conversion to active forms<br>↓absorption                      |
| Antacids: aluminum hydroxide & others                                      | Phosphates                                                                                                  | ↓absorption                                                                                                          |
| Anticoagulants: sodium warfarin                                            | Vitamin K                                                                                                   | ↓synthesis of coagulation factors                                                                                    |
| Anticonvulsants: barbiturates<br>diphenylhydantoin                         | Folates<br>Vitamin D<br>Vitamin K                                                                           | unknown<br>inhibition of 25-hydroxylation<br>↓enzymatic destruction of sodium warfarin<br>(Coumadin)                 |
| Antibiotics: chloramphenicol<br>isoniazid<br>neomycin<br>tetracyclines     | Phenylalanine<br>Vitamin B <sub>6</sub> , niacin and tryptophan<br>Fats and fat-soluble vitamins<br>Calcium | competes for binding to t-RNA<br>direct antagonism<br>sequesters bile acids<br>chemical combination                  |
| Anti-inflammatory agents:<br>salicylates<br>indomethacin<br>phenylbutazone | Ascorbic acid                                                                                               | ↓urinary excretion                                                                                                   |
| Corticosteroids                                                            | Folates<br>Vitamin D and calcium<br><br>Vitamin B <sub>6</sub><br>Zinc                                      | ↓absorption<br>↓metabolism of vitamin D,<br>calcium absorption<br>↓requirement<br>↓urinary excretion                 |
| Cholesterol-lowering agents:<br>cholestyramine<br>clofibrate               | Fats and fat-soluble vitamins<br>Vitamin K                                                                  | bile acid sequestration<br>potentiates sodium warfarin<br>(Coumadin) drugs                                           |
| Diuretics: thiazides                                                       | Sodium and potassium<br>Glucose<br>Uric Acid                                                                | ↓urinary excretion<br>?impaired glucose utilization<br>hyperuricemia, cause?                                         |
| Antimetabolites:<br>methotrexate<br>pyrimethamine<br>5-fluorouracil        | Folates                                                                                                     | Direct antagonism                                                                                                    |
| Antihypertensives: hydralazine                                             | Protein                                                                                                     | ↓absorption and impaired synthesis                                                                                   |
| Hypoglycemics: metformin<br>phenformin                                     | Vitamin B <sub>6</sub><br>Vitamin B <sub>12</sub>                                                           | uncertain<br>↓absorption                                                                                             |
| Laxatives: mineral oil<br>high fiber diet<br>others                        | Fat-soluble vitamins<br>Zinc and iron<br>Potassium loss                                                     | GI excretion (disputed)<br>impaired absorption<br>fecal excretion                                                    |
| Miscellaneous: antihistaminics<br>tricyclic antidepressants<br>L-dopa      | food intake<br>food intake<br>Vitamin B <sub>6</sub>                                                        | dry mouth, appetite<br>uncertain<br>competitive antagonism; large dose of B <sub>6</sub><br>reduces effect of L-dopa |
| colchicine                                                                 | Vitamin B <sub>12</sub>                                                                                     | ↓absorption                                                                                                          |

From: Hodges RE: *Nutrition in Medical Practice*. Philadelphia: Saunders, 1980.

interactions may be helpful in the choice of drug therapy and in the diagnosis of sudden clinical changes.

The maintenance of adequate nutritional status often increases the individual's tolerance to a drug. Most of the alterations of pharmacokinetics with aging are consistent with age-related changes in body composition, protein binding, renal function, and tissue perfusion. However, it is possible that some of the differences in drug metabolism of older persons are secondary to nutritional factors. Dietary protein, essential fatty acids, calcium, zinc, magnesium, ascorbic acid, and riboflavin have been shown to affect various

hepatic enzyme systems and therefore drug metabolism and toxicity in experimental animals and humans.

An important question for the clinician is whether drug dosage or schedules of administration should be different for the nutritionally depleted patient. Unfortunately, the few studies of drug metabolism in malnourished humans (which have included studies of chloramphenicol, tetracycline, streptomycin, antipyrine, and penicillin) do not give consistent results. The effects of nutritional depletion on drug metabolism are apparently complex and dependent upon the severity of malnutrition and the characteristics of the drug,



# In G.I. therapy



## Adjunctive **Librax**<sup>®</sup>

Each capsule contains  
5 mg chlordiazepoxide HCl  
and 2.5 mg clidinium Br

### antianxiety/antisecretory/antispasmodic

### for adjunctive therapy of duodenal ulcer\* and irritable bowel syndrome\*

## Librax<sup>®</sup>

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:

"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.

Final classification of the less-than-effective indications requires further investigation.

**Contraindications:** Glaucoma, prostatic hypertrophy, benign bladder neck obstruction; hypersensitivity to chlordiazepoxide HCl and/or clidinium Bromide

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium<sup>®</sup> (chlordiazepoxide HCl/Roche) to known addic-

tion-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.

As with all anticholinergics, inhibition of lactation may occur.

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression: suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug

and oral anticoagulants; causal relationship not established.

**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction; changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

ROCHE

Roche Products, Inc.  
Manati, Puerto Rico 00701



# "We're together because Dr. Benson recommended home health care."

Home health care is an excellent alternative when your patients cannot fully care for themselves, yet do not need to be in a hospital or nursing home. They can enjoy the comforts of home and family while receiving the care they need, often at a cost far below that of institutional care. And you are always in full control of the plan of care.

Each year, thousands of people receive care at home from Upjohn HealthCare Services<sup>SM</sup>. We employ nurses, nurse assistants, home health aides, homemakers and companions.

We're the nation's leading private provider of home health care, with hundreds of offices throughout the United States and Canada. Many of our offices are licensed to provide services covered by Medicare.

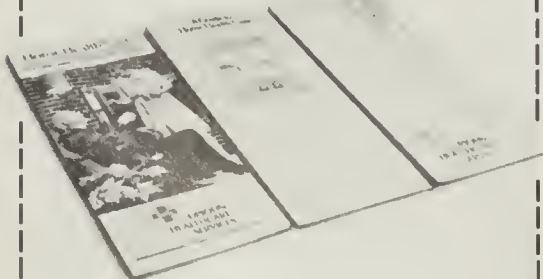
Upjohn HealthCare Services is a service program of The Upjohn Company, a name you and your patients can trust. For free home health care information packets you can give to your patients, please send us the coupon below. Or call our office nearest you, listed in the white pages of your telephone directory.



**UPJOHN  
HEALTHCARE  
SERVICES<sup>SM</sup>**

Let us help you tell your patients about home health care.

- Please ☐ send me 10 free home health care information packets  
☐ have your service director call me



Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Mail to: Upjohn HealthCare Services  
Dept. SJG  
3651 Van Rick Drive  
Kalamazoo, Michigan 49002

HM-6743 ©1981 Upjohn HealthCare Services, Inc





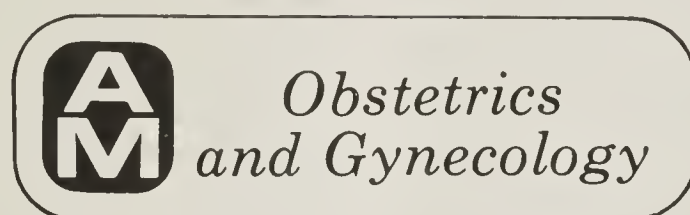
especially protein binding and route of metabolism. It is not possible at this time to draw definite conclusions regarding modification of dose and schedule of drugs in relation to malnutrition. The clinician should be aware, however, that pharmacokinetics may be altered in the malnourished patient.

#### **Nutritional Support of the Elderly Patient**

The development and application of quantitative methods of assessment of nutritional status has proven valuable in recognizing malnutrition in the hospitalized patient, selecting a nutritional support regimen and evaluating patient progress. The basis for a minimum nutritional assessment protocol for the ill or injured elderly patient should include clinical and laboratory assessments, as well as dietary and drug history.

Individuals receiving partial or total intravenous nutritional support will require more detailed monitoring of metabolic status. The type of nutritional support system and preparations used should be decided in light of the patient's nutritional status, presence and degree of hypercatabolism, functional status of the gastrointestinal tract, appetite and food preferences. Attention to nutritional assessment and support should be an integral part of care both for the ambulatory elderly patient and for the stressed, hospitalized older patient.

For a more detailed discussion and bibliography, see G. G. Harrison and E. E. Fung, *Nutrition in the Elderly*. In: R. Bressler and K. Conrad (eds), *Drug Therapy in the Elderly* (Mosby, in press). Preprint may be obtained from Dr. Harrison.



## **Sinusoidal Patterns**

Walter B. Cherny, M.D.

Editors:

Byron C. Butler, M.D.

Walter B. Cherny, M.D.

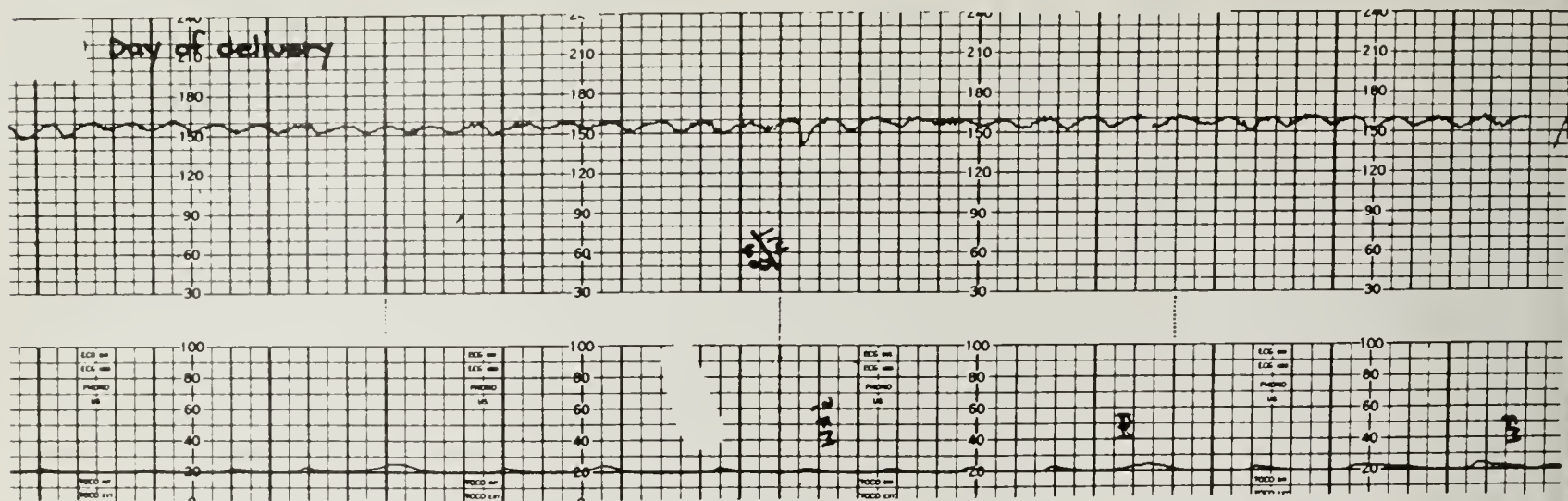
Once a month, a Tri-Hospital Perinatal Mortality Conference is held in Phoenix, when obstetricians and neonatologists from Good Samaritan Hospital, St. Joseph's Hospital and Maricopa County General Hospital gather to review and discuss the perinatal events in these hospitals for the preceding month.

From time to time, this column will publish selected summaries of the discussion, emphasizing important clinical points of interest to all physicians who care for obstetrical and newborn patients. W.B.C.

Electronic fetal monitoring has gained enormously in popularity during the past five to seven years in this country especially, so that it is now available in the majority (though by no means all) of hospitals with active obstetrical services. Although some advocates feel it to be indispensable for the proper conduct of every labor, there are others who find it of value only in certain patients who have special risk factors during parturition.

Electronic monitors do not at present measure fetal well-being. What is measured, rather crudely at that, is the cardiac activity of the unborn infant, most often in relation to the labor contractions of the uterus. A variety of heart rate "patterns" has become recognized through experience, some of which are taken to be normal, and others indicating graded degrees of fetal distress ranging from innocuous to quite ominous, and possibly fatal. One such pattern, the sinusoidal pattern, is felt by some to be an important marker of fetal distress.

From: Good Samaritan Hospital, Department of Ob-Gyn, 1033 E. McDowell RD., P. O. Box 2989, Phoenix, Arizona 85062



The fetal heart rate tracing at the top displays a sinusoidal pattern, while the uterine contractions, mild in this patient, are at the bottom.

A typical sinusoidal pattern (Figure 1) as displayed by an electronic fetal monitor is characterized by two to five cycles per minute, lasting five minutes or more, with an amplitude of five to forty beats per minute from the baseline. It is further identified by the relatively fixed amplitude and the relatively fixed periodicity. There is commonly a loss of short term variability. Described first in 1972, it has generally been thought of as an indication of severe fetal jeopardy.

The cause of this pattern, although not specifically known, is probably due to asphyxia of the brain and heart resulting in loss of central nervous system control of the heart, and changes in the heart rate due to local

anoxemia of the myocardium. It has been reported in Rh isoimmunized patients, severely anemic babies and in association with the use of nisentil, a maternal analgesic.

A sinusoidal pattern is not pathognomonic of any specific condition, but must be regarded with serious concern. Management consists of immediate administration of oxygen, positioning of the mother so that she is lying on her left side, and preparation for immediate delivery, either per vaginam or by cesarean section. Because sinusoidal patterns are quite rare, they may be confused with exaggerated long term variability. If one is unsure of the diagnosis of this pattern, a fetal scalp blood sample may help determine if the fetus is in jeopardy.





# Carcinomatous Meningitis

## A Review

Gerald Hagin, M.D.

Editors:  
David S. Alberts, M.D.  
Ellen M. Chase, B.S.

### Introduction

Invasion of the leptomeninges by systemic cancer is a problem of increasing importance for today's oncologist. With the development of new drugs and more effective combination chemotherapy, many cancer patients experience prolonged survival.

Prolongation of survival, however, permits the development of metastatic disease in drug-protected sanctuaries such as the leptomeninges. For example, patients with acute lymphocytic leukemia (ALL) have experienced prolonged survival as a consequence of improved remission induction chemotherapy. However, remissions frequently terminate with CNS relapse. Fortunately, prophylactic radiotherapy and intrathecal methotrexate have effectively prevented relapse and contributed significantly to the long-term remissions and cures.

Although carcinomatous meningitis is often a preterminal condition, its development in patients with well-controlled neoplastic disease makes its recognition and treatment especially important. Patients with carcinoma of the breast, small cell carcinoma of the lung, acute lymphocytic leukemia (ALL), and the diffuse non-Hodgkin's lymphomas appear to be at greatest risk.<sup>1-6</sup> Although one might presume that the frequency of primary malignancies resulting in carcinomatous meningitis might correspond to the prevalence of these malignancies in the general population, other unknown factors must play a significant role, since colon cancer, the most frequent systemic cancer common to both sexes, seldom metastasizes to the leptomeninges.

From: Section of Hematology and Oncology, Department of Internal Medicine, University of Arizona Health Sciences Center, 1501 North Campbell Avenue, Tucson, Arizona 85724

Table 1  
Symptomatology

### General Characteristics

- involvement of more than one division of the neuroaxis { cerebral  
cranial nerves  
spinal
- tendency for the number of symptoms to increase with disease progression
- symptoms usually are less frequent than actually abnormal physical findings

### Specific Symptomatology

Cranial { Impaired Vision  
Facial Weakness  
Dysarthria  
Dysphagia  
Decreased Hearing } Most Common

Spinal { Pain { Radicular  
Generalized }  
Numbness  
Weakness  
Neck Stiffness  
Bowel and Bladder Dysfunction -  
symptoms referable to } Most Common

Cerebral { Headache  
Mental Status  
Changes  
Vertigo  
Giddiness  
Nausea/Vomiting } Most Frequent

How does systemic cancer spread to the leptomeninges? For many years, this subject created considerable controversy. Three distinct theories existed: (1) invasion via the choroid plexus; (2) invasion via the leptomeningeal vessels; or (3) direct extension from parenchyma or nerve roots.

The work of Gonzalez and Garcia<sup>7</sup> may have settled this dispute, since it confirmed that tumor spread is perineural or perivascular, beginning in axial lymphatics, nodes, and vessels, and progressing centripetally through the intravertebral foramina and eventually to the leptomeninges.

### Symptomatology

The symptoms of carcinomatous meningitis are best referred to by their location along the neuroaxis. These can be separated into cerebral, cranial nerve, and spinal divisions. The general characteristics and most frequent symptomatology are listed in Table 1. Olson et al<sup>1</sup> have suggested that carcinomatous meningitis should be suspected when there is a simultaneous occurrence of symptoms or signs in more than one division of the neuroaxis. In their series, headache and mental status changes were the most common cerebral symptoms. Other symptoms suggestive of cerebral involvement included giddiness, vertigo, nausea, vomiting, seizures, ataxia, and loss of consciousness. Progression of the disease was associated with a concomitant increase in

**Table 2**  
**Physical Findings**  
**Associated With Carcinomatous Meningitis**

**General Characteristics**

- usually involve more than one division of the neuroaxis;
- usually more frequent abnormalities than symptoms
- tend to progress with course of the disease

**Common Physical Findings**

|               |   |                                                                                                                 |
|---------------|---|-----------------------------------------------------------------------------------------------------------------|
| Cerebral      | { | Altered Mental State<br>Confusion<br>Memory Loss<br>Seizures                                                    |
| Cranial Nerve | { | Ocular Motor Nerve Findings<br>VII Nerve Palsies<br>VIII Nerve Palsies<br>Others, including papilledema         |
| Spinal Root   | { | Hyporeflexia<br>Decreased Strength<br>Pathological Reflexes<br>Nuchal Rigidity<br>Bowel and Bladder Dysfunction |

symptomatology. Reports by Little<sup>2</sup> and Gonzalez and Garcia<sup>7</sup> substantiated these findings.

Cranial nerve symptoms occurred less frequently than central symptoms and included impaired vision, diplopia, decreasing hearing, dysarthria, and dysphagia.<sup>1</sup> Most patients experienced an increased number of symptoms with progression of the disease. In a series studied by Little,<sup>2</sup> twelve of twenty-nine patients complained of double vision at the time of initial diagnosis. Other symptoms included facial weakness, slurred speech, drooping eyelid, and loss of vision.

Spinal symptomatology<sup>2</sup> may include pain, numbness, and weakness of both upper and lower extremities. Roughly 25% of Olson's patients<sup>1</sup> eventually developed symptoms referable to bowel or bladder dysfunction. Seventy percent developed focal weakness and nearly 70% had pain.

**Physical Findings**

The neurological signs of carcinomatous meningitis tend to be more extensive than the initial symptomatology and also tend to progress with disease course. Table 2 outlines the most frequent physical findings and general characteristics of carcinomatous meningitis.

Special mention should be made regarding the association of nuchal rigidity with carcinomatous meningitis. Although often considered essential to the diagnosis of meningitis, it appeared in less than 50% of patients in two large studies.<sup>1,2</sup>

Progression of physical findings is concomitant with clinical deterioration and disease progression.

To summarize, physical findings usually refer to more than one division of the neuroaxis, as with symptoms. Early diagnosis and aggressive treatment, however, may limit these findings to one division of the neuroaxis.

**Laboratory Data**

The examination of cerebrospinal fluid (CSF) is the most important laboratory parameter for the diagnosis of carcinomatous meningitis. Frequently, multiple lumbar punctures are required to achieve a diagnosis.<sup>1,2</sup> The CSF obtained by lumbar puncture in patients with leptomeningeal carcinomatosis is almost always abnormal.<sup>1,2</sup> Classical findings in patients with carcinomatous meningitis include increased opening pressure, moderate to extremely low glucose, elevated protein, and pleocytosis. However, any of the above may be normal. In fact, in some patients, the only initial abnormality may be an elevated opening pressure.

Decreased CSF glucose was present in 76% of the patients in Little's series,<sup>2</sup> while in the series by Olson,<sup>1</sup> initial glucose was abnormal in only 38%. (However, 72% eventually became abnormal.) CSF protein was increased in 70% of the patients. Often malignant cells were found in the absence of a pleocytosis. Opening pressures were elevated in 50% of patients initially and in 65% ultimately. In addition to carcinomatous meningitis, the differential diagnosis of a similarly abnormal CSF fluid includes T.B., fungal, mumps, and sarcoid meningitis.

A recent report by Mavligit<sup>8</sup> suggested that elevation of Beta 2 microglobulin in cerebrospinal fluid correlated with central nervous system involvement by leukemia or lymphoma, and that serial determinations of Beta 2 microglobulin might be a useful marker for early relapse.

Other laboratory procedures, while helpful, usually are not specific, and require CSF evaluation for eventual diagnosis. Myelograms occasionally reveal multiple nodular defects. In fact, symptomatology and physical findings frequently direct the physician to myelography.

A recent report by Enzmann et al<sup>9</sup> described the use of CAT scans in the diagnosis of metastatic leptomeningeal disease. Forty-five patients were evaluated. CAT scans documented leptomeningeal spread in only 3% of patients with hematologic malignancies. Leptomeningeal metastases from primary carcinoma were detected in four of nine patients, as well as in two additional patients with melanoma. Other laboratory parameters which have been evaluated include the electroencephalogram, brain scan, pneumoencephalogram, and arteriogram. These studies, when abnormal, are not specific and do not contribute significantly to the diagnosis of carcinomatous meningitis.

Hence, the most important laboratory parameter for evaluation of a patient with suspected carcinomatous meningitis is the examination of cerebrospinal fluid. A chart summarizing the usefulness of the various laboratory parameters is shown in Table 3. Some abnormality should be present in all cases. In addition, computerized axial tomography or myelography may facilitate diagnosis of this disease.

**Treatment**

The treatment of leptomeningeal metastasis



**Table 3**  
**Laboratory Data**

|                                                                 |   |                                                     |
|-----------------------------------------------------------------|---|-----------------------------------------------------|
| <b>Most Helpful</b>                                             | } | Decreased Glucose                                   |
| Cerebrospinal Fluid Examination<br>(Any or all may be abnormal) |   | Increased Protein<br>Pleocytosis<br>Malignant Cells |
|                                                                 |   | Increased Opening Pressure                          |
| <b>I. Somewhat Helpful</b>                                      |   |                                                     |
| CAT Scan - For non-Hematologic Malignancies                     |   |                                                     |
| Myelogram                                                       |   |                                                     |
| <b>II. Least Helpful</b>                                        |   |                                                     |
| Brain Scan                                                      |   |                                                     |
| Electroencephalogram                                            |   |                                                     |
| Pneumoencephalogram                                             |   |                                                     |
| Arteriogram                                                     |   |                                                     |

continues to be difficult. Patients with ALL, AML, and diffuse lymphomas have achieved the most benefit, since current therapy (combined modality) may eradicate the disease without excessive CNS toxicity. With the exception of breast cancer, treatment for leptomeningeal metastases from non-hematologic malignancies has been less effective. A summary of the current therapeutic options and associated complications of treatment is shown in Table 4.

Currently available preparations for intrathecal use include methotrexate (MTX), Ara-C (cytosine arabinoside), and thiotepea. Central nervous system toxicity has thus far precluded the use of other drugs. Treatment usually consists of intrathecal or intraventricular injection. Complications of both methods exist. Problems associated with intrathecal administration include local reactions from leakage of the drug, arachnoiditis, myelitis, and severe cephalalgia, as well as risk of CNS infection from repeated lumbar punctures. Opponents also argue that drug concentrations may not be adequately achieved throughout the entire neuroaxis.

Intraventricular chemotherapy is achieved by neurosurgical placement of an intraventricular catheter and subcutaneous Ommaya reservoir. Galicich<sup>10</sup> reported his initial experience with the Ommaya reservoir in 45 patients (21 with leukemic meningitis, 22 with carcinomatous meningitis and two with infectious meningitis). Thirteen patients developed surgical complications including ventriculitis (one patient), positive CSF culture (three patients), misplacement of the catheter (four patients), occluded catheter (four patients), and neurological deficit (one patient). In a more recent report by Sundaresan and Galicich,<sup>11</sup> 200 patients underwent insertion of an Ommaya reservoir and intraventricular catheter. The complication rate was less than five percent and was related to secondary infections from multiple taps of the reservoir. Systemic complications from intrathecal or intraventricular therapy may also occur. One report related bone

**Table 4**  
**Treatment**

#### Current Best Treatment

- Radiation to involved neurological divisions
- Intrathecal or intraventricular chemotherapy with methotrexate, Ara C, or both
- Ommaya Reservoir (Long-Term Placement)

#### Alternative Treatments

- High-dose Methotrexate with Citrovorum Rescue
- Total Spinal-Cranial Irradiation

#### Complications of Treatment

- Infection
  - Bleeding
  - Neurological deterioration
  - Systemic Complications of Chemotherapy Including
- { Marrow Toxicity  
Pulmonary Toxicity  
Other Drug-Specific Toxicity

marrow suppression and pneumonitis from intrathecal methotrexate.<sup>12</sup>

Although systemic therapy with high-dose methotrexate followed by citrovorum factor rescue appears to achieve adequate CSF drug concentrations,<sup>13</sup> few centers currently rely on this form of therapy for the treatment of carcinomatous meningitis.

Radiotherapy for leptomeningeal metastases consists of radiation directed to the sites of neurological involvement, and may consist of whole-brain, craniospinal, or local irradiation. For example, a patient with cerebral symptoms would receive whole-brain irradiation as well as intrathecal chemotherapy.

In a report by Glass, Shapiro, and Posner,<sup>14</sup> 47 patients with leptomeningeal metastases were evaluated. Nine had lymphoma and 38 had solid tumors. Diagnosis was established by CSF examination in 38 patients, by myelogram in three patients, and by CAT scan in one patient. Ommaya reservoir and intraventricular shunt were placed in all patients. Treatment consisted of MTX, Ara C, or both, in combination with radiotherapy to the site of major clinical involvement. Results were as follows: 37 patients had at least stabilization of their disease from one week to 2½ years, with a median survival (MST) of 3 months. Twelve patients had evidence of neurological improvement. Eight patients clearly progressed on treatment. Two were lost to follow-up. Although CSF cytology improved in 30 of the 31 patients, it did so independently of clinical course. Their evaluation thus revealed that 90% of patients achieved some benefit from the therapy. Aggressive early therapy seemed to improve neurological function in approximately 25% of their patients.

A more detailed report of these patients<sup>15</sup> revealed that 10% of the responders survived for at least one year. The best responses were seen in those patients with breast cancer. Survival was longest in patients with minimal systemic disease and in those who responded to

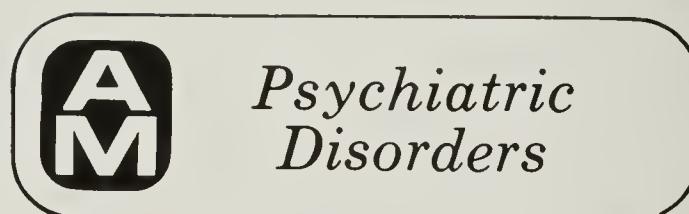
therapy in less than one month.

In summary, untreated patients with leptomeningeal metastases or those who fail to respond to treatment have a median survival time of 6 weeks. The current best treatment consists of radiation therapy to involved areas of the neuroaxis combined with intraventricular chemotherapy by means of the Ommaya reservoir and intraventricular shunt. The type of chemotherapy will depend on the tumor primary. Mean survival time with this form of therapy appears to be three months or twice that of the non-responders or untreated group. Aggressive early therapy prevents further neurologic deterioration, and for about 25% of patients, actually results in improvement. In experienced hands, placement of an intraventricular catheter and Ommaya reservoir is probably better than repeated lumbar punctures for drug administration and currently has a complication rate of about five percent. Of the patients with solid tumors, those with the least amount of systemic disease and those patients with breast cancer seem to do the best.

#### References

1. Olson ME, Chernik NL, Posner JB: Infiltration of the leptomeninges by systemic cancer. *Arch Neurology* 30:122-137, 1974.
2. Little JR, Dale AJD, Okazaki H: Meningeal carcinomatous. *Arch Neurology* 30:138-143, 1974.
3. Simone J: Acute lymphocytic leukemia in childhood. *Seminars in Hematology* 11(1):25-39, 1974.
4. Voakes JB, Jones SE, McKelvey EM: The chemotherapy of lymphoblastic lymphoma. (To be published).
5. Herman TS, Hammond N, Jones SE, Butler JJ, Byrne JRGG, McKelvey EM: Involvement of the central nervous system by non-Hodgkin's lymphoma. The Southwest Oncology Group Experience. *Cancer* 43:390, 1979.
6. Brereton HD, O'Donnell JF, Kent CH, Mathews M, Dunnick NR, Johnson RE: Spinal meningeal carcinomatosis in small cell carcinoma of the lung. *Annals of Intern Med* 88(4):517-519, 1978.
7. Gonzalez-Vitale JC, Garcia-Buneul R: Meningeal carcinomatosis. *Cancer* 34:2906-2911, 1976.
8. Mavligit G, Stuckey S, Cabanillas F, Keating M, Tourtellotte W, Schold S., Freireich E: Diagnosis of leukemia or lymphoma in the central nervous system by Beta<sub>2</sub> Microglobulin Determination. *NEJM* 303(139):718-721, 1980.
9. Enzmann DR, Krikorian J, Youlie C, Hayward R: Computed tomography in leptomeningeal tumor spread. *J Computer Assist Tomography* 2(4):448-455, 1978.
10. Galicich JH, Guido LJ: Ommaya device in carcinomatous and leukemic meningitis - surgical experience in 45 cases. *Surg Clin North America* 54(4):915-922, 1974.
11. Sundaresan N, Galicich JH: Brain Tumors: Management of carcinomatous meningitis. In: *Current Concepts in Surgical Oncology*, Shaw (editor), pp 225-26, 1978.
12. Gutin PH, Green MR, Bleyer WA, Bauer VL, Wiernik PH, Walker MD: Methotrexate pneumonitis induced by intrathecal methotrexate therapy. *Cancer* 38(4):1529-1534, 1976.
13. Pitman S, Frei E: Weekly methotrexate citrovorum, with alkalinization: Tumor response in a Phase II study (Meeting Abstract) *Proc Am Assoc Cancer Res* 18:124, 1977.
14. Glass JP, Shapiro WR, Posner JB: Treatment of leptomeningeal metastases (Meeting abstract) *Neurology (Minneapolis)* 28(4):350-351, 1978.
15. Ushio Y, Chernik NL, Posner JB, Shapiro WR: Meningeal carcinomatosis: Development of an experimental model. *J Neuropathol Exp Neurol* 36(2) 228-244, 1977.
16. Greco FA, Fer MF: Oat cell carcinoma of the lung with carcinomatous meningitis. *NEJM* 298(20):1146, 1978 (letter).

17. Alberts MC, Terrence CF: Hearing loss in carcinomatous meningitis. *J Laryngol, Otol* 92(3):233-241, 1978.
18. Sadrin R, Coninx P, Eurard G, Simatos A: Leptomeningeal infiltration in the development of solid tumors: Contribution of cytology. *Arch Anat Cytol Pathol* 27(5):325-327, 1979.
19. Aisner J, Aisner SC, Ostrow S, Gouidan S, Mummort K, Wiernik P: Meningeal carcinomatosis from small cell carcinoma of the lung. Consequence of improved survival. *Acta Cytol. (Baltimore)* 23(4):292-296, 1979.
20. Mayer RJ, Berkowitz RS, Griffiths CT: Central nervous system involvement by ovarian carcinoma. A complication of prolonged survival with metastatic disease. *Cancer* 41(2):776-783, 1978.



## Understanding

William B. McGrath, M.D.

Editor:

Thomas E. Bittker, M.D.

Psychiatrists are notorious for replying to a question by asking another. "I'd be interested to know why you asked that." Joking aside, there are a couple lessons to be learned. One might have to defend a statement; one almost never has to defend a question.

The questioning response helps to keep the responsibility for progress where it belongs; namely, with the patient. This is in contrast to most of the work in medicine and surgery wherein the doctor intervenes in a more directly active way.

Immature patients, especially those who are passive-aggressive, will subtly shift responsibility for their problems and progress toward your side of the desk. They have an unconscious need to blame and punish because no one elsewhere has made them happy.

One such patient, seen for evaluation of a very complicated and tenacious neurosis, terminated the initial interview with a smiling rebuke: "Well, I don't see that we are getting anywhere." Until the physician can have elicited an honest explanation of the motives behind such a cutting remark, he will be on the defensive in a contest of which he does not know the rules. His challenge can be calm and polite, albeit still a challenge: "I wonder what you expected and whether your expectations were realistic? And if not, why not?"

From: 4910 North Forty-fourth Street, No. A-6, Phoenix, Arizona 85018



The other lesson in questioning the question is not as obvious but is very important.

A patient may ask his family doctor or any trusted physician some advice about a personal matter or a source of worry or conflict or unhappiness. Now you and the patient might both suppose that he is actually wanting an answer. And you are both probably wrong!

The individual who seems to be asking guidance may not realize it, but more often than not he is inviting or soliciting a non-judgmental discussion of his problem. He is entreating the physician to ask such probing questions as might shed light on various aspects of a conflict and the pros and cons of possible solutions.

A refined young matron was concerned about her inability to achieve (sic!) orgasm. Candid discussions with her husband did little to lessen his confused insecurity or her own. She consulted her harried gynecologist who reassured her that she was anatomically unimpaired and who advised, "fake it." An endocrinologist told her that she was perfectly normal and suggested that she buy a vibrator!

Direct confrontation of the sexual inhibition served only to drive it deeper into the cave.

Her family physician initiated a compassionate inquiry with a questioning proposition: "Maybe the real problem is not the yes or no of orgasm but why you cannot abandon yourself to instinctual pleasure, why you are afraid to let yourself go, why you can't set aside some kind of vigilance."

The patient was only ten when her mother died of a brain tumor. To condense some complex psychopathology, only the mother and not the father can grant a girl-child "permission" to enter and embrace her womanliness. The father instinctively sustains her presexual, little girl identity.

The mature physician, mindful of his surrogate roles, will appear sexually more or less neutral. In this regard he is not unlike the priest in his cassock. A flauntingly

macho male or seductively female physician defaults respect and loses authority and influence.

Similarly, the doctor who offers a lot of premature or especially unsolicited advice, no matter how well intentioned, is being aggressive and pushing away his patients. So, too, the physician who cannot resist moralizing when he is on duty has failed to define what his duty is.

His duty is first and always to try to understand his patient. The equation or formula is simple: If the doctor can begin to understand the patient, then the patient can begin to understand himself — and perhaps forgive and accept himself or see the possibility of change.

Understanding is what most individuals have longed for, sought and never found. They have encountered the crushing rejection of unfounded advice or criticism or judgment. They have heard meaningless admonitions and exhortations, things they have said to themselves a thousand times: "Pull yourself together. Get a grip on yourself. You'd better straighten up and fly right. You're just feeling sorry for yourself. Think positive. Pray a little harder." They have been offered therapies without insight and which are therefore groundless and patronizing and futile.

If a troubled person cannot find understanding in a physician's office, where else can he turn? In church he may receive forgiveness without understanding but this is rather unsubstantial and not very helpful in prevention of further problems. At home there is always the unrelaxed fear of being a disappointment. Only in a stranger might one fully confide. Only a stranger will not judge or condemn or give premature counselling.

So the effective physician starts out as a stranger, avoiding familiarity. He listens and asks questions and holds judgment until he and the patient are no longer strangers, and their bond is based on understanding. We sometimes tell a patient, only half in jest, "This is the only place in the world where you cannot make a bad impression."



## Case of the Month No. 50

Jonathan M. Levy, M.D.  
Franklin R. Lewkowitz, M.D.  
Cary J. Stegman, M.D.

Editors:

Jonathan Levy, M.D.  
Gerald Pond, M.D.

A fifty-seven year old lady had a lesser curvature gastric ulcer found on upper GI examination two years ago. (Figure 1) She has had epigastric pain, with exacerbations and remissions, over the past two years. She is presently asymptomatic, and returned for a follow-up upper GI series, which shows an abnormality. (Figure 2)

What is the abnormality?

How can the diagnosis be confirmed?

What is the prognosis?

From: From the Department of Diagnostic Radiology, Jonathan M. Levy, M.D., Cary J. Stegman, M.D., and Gastroenterology, Franklin R. Lewkowitz, M.D., Scottsdale Memorial Hospital, 7400 East Osborn Road, Scottsdale, Arizona 85251.



Figure 1  
Ulcer on lesser curvature of gastric antrum (arrow).



Figure 2  
Spot film of antrum and duodenal bulb.

Continued on page 118 →





*State of the Art*

# Juvenile Rheumatoid Arthritis

F. Paul Alepa, M.D.

Editor:  
Eric H. Prosnitz, M.D.

Juvenile rheumatoid arthritis (JRA) is the generic term used for idiopathic chronic inflammatory arthritis with onset prior to age of sixteen. Although the common manifestation is inflammatory arthritis, the mode of onset, nature of the joint involvement, systemic manifestations, complications, course and outcome are so varied as to suggest that JRA represents more than one entity. The detailed clinical studies of Drs. E. G. L. Bywaters and B. Ansell in England and Drs. J. J. Calabro and J. G. Schaller in America over the past thirty years have led to the establishment of subgroups of JRA. The initial subgrouping was based on the prominent clinical manifestation occurring within the first three to six months from onset. Two major groups were identified: the systemic group in which fever is the prominent manifestation and the articular group in which arthritis dominates the clinical picture. The articular group was subdivided on the number of joints involved. The

polyarticular group has involvement of five or more joints while the pauciarticular group has less than five. Recently, further subsets of the articular groups have been identified based on age of onset, sex and certain laboratory tests. The identification of these subgroups has made the diagnosis of JRA more meaningful by allowing a more accurate determination of the clinical course, risk of complications and prognosis for each of the subgroups. In turn, organizing the data in this fashion gives the clinician a rational approach to learning and using this information.

## Systemic

Twenty percent of all JRA patients are included in this group. This mode of presentation can occur at any age and is somewhat more common in boys.

The characteristic feature of the systemic group is daily temperature elevations to 103°F or above.<sup>1</sup> This usually occurs in mid-afternoon, lasts several hours and returns to normal levels. Failure of the daily temperature elevations to return to normal is rare. Equally rare is the occurrence of true shaking chills. Children under the age of six years usually are listless and very irritable at the height of the fever, often giving the clinical appearance of central nervous system involvement. Cerebral spinal fluid abnormalities, however, are absent. Anorexia and weight loss can be profound. In contrast, the latter symptoms are milder or totally absent in the febrile older child. After several months the daily intermittent fever may become erratic, begin to skip days and may establish a relapsing pattern.

The typical macular or maculo-papular rash occurring on the face, trunk and extremities is present sometime during the febrile course in ninety percent of these patients. It commonly appears as the temperature rises and completely clears as the temperature recedes. The macules are usually light salmon in color with serpiginous edges.<sup>2</sup> When they first appear they can be quite faint but tend to become more defined patches if they persist during the entire daily febrile period. The rash is not purpuric. Unlike erythema marginatum of rheumatic fever, the lesions don't rapidly enlarge or spread. The macules are usually non-tender and the patient may be unaware of their presence. The rapid appearance and disappearance of this red rash without residual or peeling is highly characteristic and very helpful in the differential diagnosis.

Generalized lymphadenopathy and splenomegaly are common findings. Usually the lymphadenopathy is not marked, but at times may be so prominent as to suggest a hematologic malignancy or systemic lupus erythematosus (SLE). Hepatomegaly is less frequent. Usually the liver is only slightly enlarged and nontender. Marked hepatomegaly at onset rarely occurs and should alert the physician to consider complications or another diagnosis. In an occasional patient mesenteric node enlargement may lead to abdominal distension and pain.

Clinically apparent pericarditis is far more common than myocarditis and occurs sometime during the course

From: Department of Internal Medicine, Section of Clinical Immunology, University of Arizona Health Sciences Center, Tucson, Arizona 85724. Dr. Alepa is Professor of Internal Medicine.

of the disease in five to ten percent of the children.<sup>3</sup> By echocardiography, however, evidence of effusion or pericardial thickening has been reported to be as high as 36%.<sup>3</sup> The effusions are usually small and significant cardiac enlargement is rarely seen at onset. While cardiac tamponade occasionally occurs the development of constrictive pericarditis doesn't. Pleural effusions, if present, are small. Parenchymal lung involvement is rare and usually very evanescent. In contrast, plate-like atelectasis, parenchymal infiltrates and significant pleural effusions commonly accompany the pericardial involvement in SLE. Despite the low incidence of significant cardiac involvement in JRA, attention must be paid to this complication as death has been reported.

The joint manifestations at onset vary from arthralgias to frank polyarthritis. In some patients the articular involvement may not become apparent for weeks or months after the onset of the fever. Classically, however, the arthritis is an inflammatory polyarthritis occurring at the same time as the systemic manifestations. Feet, ankles, knees, hands, wrists and elbows (usually in a symmetric fashion) are the joints most commonly involved. Shoulders and hips are significantly less involved and rarely at onset. Effusions and synovial thickening are present, particularly in the larger joints. The degree of involvement and pain in any particular joint can vary throughout the day and from day-to-day. It is usually worse at the height of the fever. The arthritis, however, is not truly migratory in the majority of patients as some swelling and tenderness to palpation commonly remain in previously involved but currently asymptomatic joints. In contrast, in rheumatic fever the articular findings, except for effusions, commonly resolve with the symptoms. Pain over the ends of the long bones or over the vertebral bodies is not a feature of JRA and suggests malignancy. Radiologic changes, apart from soft tissue swelling, are not present at onset. Indeed, aside from osteopenia and periosteal new bone formation, radiologic changes are rarely seen in the first year of disease.

The majority of children with systemic manifestations will be anemic when first seen. However, hematocrits below twenty-six in the younger, and thirty in the older child are uncommon and should alert the physician of the possibility of other diagnoses such as SLE or malignancy. The white count is usually elevated in the range of 16-20,000 with polymorphonuclear leukocytes predominating. While a normal peripheral white count can be seen, leukopenia at onset does not occur and if present suggests the diagnosis of SLE. Thrombocytosis is common. The erythrocyte sedimentation rate is usually elevated and a diffuse polyclonal gammopathy may present. The urinalysis is most often normal or may have trace to 1+ proteinuria. More marked proteinuria, particularly in the presence of white cells and red cells, is suggestive of systemic lupus erythematosus. Proteinuria occurring after several years of disease activity may be the first laboratory indication that the patient has developed secondary amyloidosis. Antinuclear antibody

(ANA) is rarely detected and antibodies to native DNA do not occur. ASO titers can be elevated in thirty to forty percent of the patients and should not be taken as evidence for the diagnosis of acute rheumatic fever.

Usually, the fever and other systemic manifestations resolve or markedly decrease within the first year. The fever may reoccur episodically thereafter before completely remitting. The articular involvement remits within the first two years in about half the patients. In the remaining half the arthritis continues for a variable period of time often with mild or no systemic manifestations. Severe disabling articular involvement is the outcome in twenty percent of those in the systemic group. Generalized growth retardation is a frequent complication in those children with continued disease activity. An adult height of under five feet is common. Although generalized growth retardation also occurs in the polyarticular group, the incidence is greater among systemic onset patients.<sup>5</sup> While deaths are more common in the systemic group than in the articular group the incidence is extremely low. In American series it is slightly over one percent while in European it is slightly over four percent. The most frequent causes of death are infection, amyloidosis and myocarditis.<sup>6</sup> The first two complications occur after a mean duration of disease activity of nine years.

#### **Articular**

This subdivision includes those patients whose prominent symptoms at onset are joint involvement rather than systemic manifestations. The group can be further subdivided into those with polyarticular and those with pauciarticular involvement.

#### **Polyarticular:**

This is the most common presentation and includes half of all JRA patients. There is an overwhelming female predominance with onset at all ages from two to fifteen years. Although joint involvement is the predominant manifestation, mild to moderate fever may be present. Rash and cardiac involvement are rare.

Involvement of five or more joints is necessary for inclusion in the group. The knees, ankles, wrists, feet, hands and cervical spine are commonly affected. A low grade flexor tenosynovitis involving both proximal and distal joints of the fingers often leads to early fixed flexion of the fingers.<sup>6</sup>

Laboratory findings are much like those in the systemic group except that they are milder and about twenty-five percent have a positive test for antinuclear antibody. The major complications are impaired general and local growth which are usually not as severe as seen in the systemic group. The prognosis is good, as the majority of these children will go into remission sometime during the first three years from onset. Ten percent, however, do develop persistent disease leading to severe disabling arthritis.

A small number of patients with polyarticular onset have a positive test for rheumatoid factor. Their articular disease is very much like adult rheumatoid arthritis.<sup>6</sup> There is an overwhelming female



predominance and unlike the serum negative group described above, the majority of patients are ten years or older at the time of onset. Involvement of the small joints of the hands and feet occurs early and usually is insidious in onset. Low grade fever, malaise, and anorexia may be present but are not a dominant part of the symptoms. Rheumatoid nodules occur in five to ten percent of the patients. The laboratory findings are similar to those described above with the exception that 100% of the children have a positive test for rheumatoid factor. Antinuclear antibodies have been detected in 75% of patients in this subgroup. This represents the highest incidence of ANA in any JRA group and is about three times higher than the incidence in adult rheumatoid arthritis.

The majority of the rheumatoid factor positive polyarticular children tend to have persistent articular involvement leading to severe disabling arthritis.

#### **Pauciarticular:**

Two subsets of this group, based on age of onset and HLA-B27 positivity, have been recognized. Ocular involvement is a common complication of both subsets. Infectious arthritis must be considered in the differential in this group, particularly in those patients with monarticular involvement. Synovial fluid analysis and culture will be helpful in excluding infection.

The early onset pauciarticular subgroup occurs predominantly in girls aged two to six. The articular involvement is usually insidious, affecting large joints of the lower extremity. It frequently causes little to no discomfort in spite of the presence of swelling and effusion. Progression to severe disabling arthritis is extremely rare. The major complication is that of chronic iridocyclitis which occurs in over fifty percent of these patients. The ocular involvement, which can be episodic in nature, is most often asymptomatic. If undetected, this persistent or recurrent ocular inflammation will lead to impaired vision. Development of synechiae, secondary glaucoma, cataracts and band keratopathy are the consequences. As many as twenty percent of these patients will develop ocular damage. Accordingly, slit lamp examinations by an ophthalmologist every three to four months are necessary. A high incidence (90%) of antinuclear antibodies has been found in those youngsters in this subgroup who develop iridocyclitis.<sup>8</sup> Topical steroids and mydriatics can be effective in treating this complication, particularly if used early. A trial of systemic steroids may be necessary in those patients with continuing inflammation after adequate topical therapy. Although chronic iridocyclitis is most frequent in this subgroup it can occasionally occur in both the systemic and polyarticular group. All children with JRA will require ophthalmologic examination. Another common complication of the pauciarticular early onset group is overgrowth of long bones surrounding the involved joints. This is most frequently seen with knee involvement and can lead to altered gait and flexion contractures.

The laboratory findings are variable. In general, if anemia is present it is mild. The white count is usually normal or only slightly elevated. Tests for rheumatoid factor are negative but antinuclear antibodies are present in about sixty percent of the group.

In the late onset pauciarticular subgroup, the majority of patients are boys over the age of ten. The joint onset is usually insidious involving large joints, especially the hips and knees. The articular inflammation is mild and can be episodic. Systemic complaints are most often absent. The majority of these children are found to be HLA-B27 positive and may go on to develop ankylosing spondylitis in their post-pubertal years. The sacroiliac and back symptoms do not usually occur under the age of fifteen. Routine laboratory tests are usually all within normal limits.

Five percent of these patients may develop acute iridocyclitis. Unlike the chronic form described above, acute iridocyclitis is painful. It tends to be episodic and smoldering activity doesn't occur. Ophthalmologic examination in the asymptomatic HLA-B27 positive child is not necessary. Treatment of this complication with topical steroids and mydriatics is usually successful and it is rare to have significant visual impairment.

In the late onset pauciarticular child who is HLA-B27 negative, psoriatic arthritis and the arthritis of ulcerative colitis and regional enteritis should be considered. Frequently the skin involvement or gastrointestinal symptoms in these disorders may not develop for months after the onset of the arthritis.

#### **Therapy**

Active disease can be suppressed in a majority of patients by the use of salicylates with a daily dosage of about 100/mg/kg in patients up to 25 kg and 60/mg/kg in those over 25 kg divided in four to six doses. The quantity of aspirin must be individualized. The amount should be sufficient to maintain a blood level of 20 to 30 mg/dl.<sup>9</sup> Abnormal liver function frequently occur in children maintained on this dosage. However, they usually return to normal with only slight reduction in the dose and without permanent hepatic damage. Sustained liver function abnormalities including prolonged prothrombin time and elevated bilirubin levels are uncommon but necessitate cessation of salicylate therapy. Tolmetin in a dosage of 15 to 30 mg/kg/day has been reported to be an effective agent for the management of JRA.<sup>10</sup> Indomethacin is often very effective in controlling the fever and articular manifestations but should not be used routinely in children under the age of fourteen because of the high incidence of peptic ulceration and hepatotoxicity.<sup>8</sup> The use of systemic corticosteroids is reserved only for those patients with severe systemic manifestations unresponsive to nonsteroidal antiinflammatories and for those with severe heart involvement. A daily dose of 10 to 30 mg of prednisone is usually required. Split dose therapy is associated with more rapid control of the disease manifestations but produces more side effects.

Low dose alternate day therapy produces less side effects but poorer disease suppression. As long term daily prednisone therapy causes pronounced growth retardation, it must be tapered and discontinued as soon as possible, preferably within six months. Gold therapy is reserved for those patients with active synovitis in spite of full dose salicylate therapy. The gold is given in addition to the salicylate at a dosage of 1 mg/kg/week to 25 kg and 25 mg to 50 mg/week for those weighing 25 to 70 kg. Skin rash, oral ulcerations, nephrotoxicity and bone marrow suppression are the major toxicities and require weekly physical examinations, urinalyses and blood counts.

Hydroxychloroquine sulfate 3 to 5 mg/kg/day has been successfully used in those children who cannot tolerate gold. A dose-related retinopathy is the most serious toxicity of this agent and necessitates two to three examinations by an ophthalmologist per year. Other drugs such as D-penicillamine, azathioprine, cyclophosphamide and chlorambucil are being used in various centers and must be considered investigational.

Physical therapy is extremely important and must be individualized for each patient.<sup>11</sup> During the active phase of disease resting splints, passive range of motion, isometric strengthening and thermotherapy are helpful in reducing pain and maintaining muscle strength and range of motion. As the severity of the synovitis decreases, functional splints, corrective splints and more active exercises are added to the program. As foot involvement is extremely common shoe modification shouldn't be overlooked.

The psychosocial development of the patient and often the psychodynamics of the family unit must be addressed, particularly in those children with chronic persistent arthritis. This may require the help of social workers, the school educational psychologists, psychiatrists, marriage counselors and parent support groups.

#### References

1. Calabro JJ, Marchesano JM: Fever associated with JRA. *N Engl J Med*, 276:11-18, 1967.
2. Isdale IC, Bywater EGL: The rash of rheumatoid arthritis and still disease. *Quart J Med* 25:377-387, 1956.
3. Brewer E Jr: JRA - Cardiac involvement. *Arth Rheum* 20 (Suppl): 231-236, 1977.
4. Bernstein B, Takahashi M, Hanson V: Cardiac Involvement in JRA. *J Pediatr* 85:313, 1974.
5. Bernstein BH, Stobie D, Singsen BH, Koster-King K, Kornreich HK, Hans V: Growth retardation in JRA. *Arth Rheum*. 20 (Suppl): 212-216, 1977.
6. Baum J, Gutowska: Death in JRA. *Arth Rheum* 20 (Suppl): 253-255, 1977.
7. Ansell B: Chronic Arthritis in Childhood. *Ann Rheum Dis* 37:107-120, 1978.
8. Schaller J, Johnson GJ, Holborow EJ: The Association of antinuclear antibodies with chronic iridocyclitis of JRA. *Arth Rheum* 17:409-416, 1974.
9. Calabro JJ, Burnstein SL, Staley: Salicylates. *Arth Rheum* 20 (Suppl): 527-528, 1977.
10. Brewer EJ: Nonsteroidal anti-inflammatory agents. *Arth Rheum* 20 (Suppl): 513-525, 1977.
11. Donovan W: Physical measurers in the treatment of JRA. *Arth Rheum* 20 (Suppl): 553-557, 1977.

## Radiology Continued

### Answer: Double channel pylorus.

Though some reports have presented double channel pylorus as a congenital lesion, present consensus favors an acquired etiology. In the majority of cases, the precipitating cause is an ulcer on the lesser curvature of the gastric antrum. As the ulcer penetrates the gastric wall, adhesions form between adjacent walls of the stomach and duodenum. Further penetration produces the fistulous tract, which later becomes epithelialized.

On upper GI series, two connections between the antrum and duodenal bulb are seen, separated by a radiolucent band of soft tissue density. (Figure 2) This appearance is characteristic, and can be confirmed by gastroscopy. Carcinoma of the stomach and Crohn's disease may also cause gastroduodenal fistulas, but these are usually easy to differentiate from double channel pylorus, both by x-ray and by endoscopy.

The majority of reported cases of double channel pylorus have occurred in males in the fifth and sixth decades of life. Usual presenting symptoms are epigastric pain and GI hemorrhage. Many patients have long histories of ulcer symptoms, and in a few reported cases, x-ray examinations have followed the course from gastric ulcer to fistula. This occurred in our patient. Prognosis is excellent, and many patients actually experience remission of ulcer symptoms concurrent with formation of the fistula. This is probably due to relief of gastric outlet obstruction associated with the ulcer. Surgical intervention in patients with double channel pylorus should probably be reserved for those with intractable pain and hemorrhage.

#### References

1. Ghahremani GG, Gore RM, Fields WR: Acquired double pylorus due to gastroduodenal fistula complicating peptic ulceration. *Arch Surg*, 115:194-198, 1980.
2. Hegedus V, Poulsen PE and Reichardt J: The natural history of the double pylorus. *Radiol* 126:29-34, 1978.
3. Jamshidnejad J, Koehler RE, Narayan D: Double channel pylorus. *Am J Roentgenol*, 130:1047-1050, 1978.





## AMA Membership

I am troubled. As of this writing (January 5th) seventy-two Pima County physicians have not paid their 1981 AMA dues. I urge all to rejoin.

Up until this year the cry was "voluntary membership." Now that we have that status here in Arizona I wonder why people have not maintained their membership?

Your membership is vital! The more physician members organized medicine has within it's fold, the more authoritatively it can speak to legislative bodies, consumer groups and the public at large.

The better acquainted I become with the varied activities of AMA the more I admire the hard working members and the many issues that are considered and dealt with.

I admire the several ways in which they attempt to be responsive to the membership. An example, is their visitation program by officials to the medical associations. Last October Lowell Steen, M.D., Chairman of the Board of Trustees, came at my request to pay us an official "family visit." He joined ArMA's Board of Directors when they met here in Tucson. Incidentally, just prior to his meeting with the Board he appeared on a local TV station and gave the viewers a good education on where organized medicine stands on several different issues. Early that afternoon he made a brief presentation to ArMA's officers, chairmen of ArMA's committees, the presidents of the speciality societies and the medical school faculty. His presentation dealt with AMA's current position on several issues. This was followed by a lively question and answer period. Finally, a reception was held to which all county medical society members had been invited, giving them an opportunity to talk informally with Dr. Steen.

The most current activities of AMA's House of Delegates are described *American Medical News*, the December 19 and December 26 editions. Please read these over carefully and become more informed about the American Medical Association.

Dan Cloud, M.D. of Phoenix will be installed as President of AMA this June in Chicago. With an Arizona physician as president of the organization we have a unique opportunity to make our voice heard. If you like what's going on at AMA or even don't like what's going on at AMA tell Dan or a member of the Arizona delegation to the AMA. I can assure you they will listen carefully to your comments and they can prove to be very helpful should you want some action. You can show your willingness to help by maintaining your membership in American Medical Association and participating in its activities.

If you have not already done so, send in your dues today and continue your membership.

John T. Clymer, M.D.  
President, Arizona Medical Association

## Physician Advertising: The Best Method

A recent Supreme Court decision regarding lawyers and their ability to advertise in the printed and electronic media has naturally resulted in speculation that physicians will follow suit (no pun intended). The American Medical Association, and the Arizona Medical Association have agreed that there is no way to prohibit physician "advertising." However, they are all concerned about the possibility that false or untrue claims will appear in such advertising. As was written in an editorial in this journal several months ago, it appears to this writer that all of the furor regarding advertising is really for naught. Physicians have been advertising for years in different ways, sometimes successfully, and at other times with a great degree of notoriety.

### Editor

**Marshall B. Block, M.D.**

### Associate Editors

**Kenneth Desser, M.D.  
C. Herbert Fredell, M.D.  
Warren Gorman, M.D.**

### Editorial Board

**Thomas E. Blittker, M.D.  
John R. Green, M.D.  
John W. Kennedy, M.D.  
William B. McGrath, M.D.  
Arthur R. Nelson, M.D.  
Charles Nugent, M.D.  
Eric Prosnitz, M.D.  
Sydney Salmon, M.D.  
Lawrence Stern, M.D.**

### Managing Editor

**Bruce E. Robinson**

### Editorial Assistant

**Joan M. Bruner**

It would be relatively easy to count the number of times certain physicians' names appear in the society pages of our local newspaper in the support of charitable institutions. This has always been a quasi-accepted form of advertising and in some situations reached a point where local medical societies have been forced to curtail such exposure by the physician-member. Whether such limitation of exposure is justified is open to question, but it emphasizes that newspaper exposure has been quite common.

Recently more physicians have taken out advertisements in local newspapers announcing the relocation or opening of an office, or their association with another physician. Health maintenance organizations, within the Phoenix area at least, have openly advertised for patients. At each new enrollment period full-page advertisements have appeared in local newspapers extolling the virtues of these health maintenance organizations over other forms of health care delivery. Advertisements for the Maricopa Foundation for Medical Care have appeared also in an attempt to gain group members. Although these attempts are not individual physician's actions, these organizations do represent physicians and as such are a form of physician advertising.

Within our medial community, advertising in local and state medical journals has appeared for various physician groups, i.e., radiological, neurological, cardiovascular groups. These advertisements are clearly an attempt to attract physician referrals.

The costs are immense for these and future adventures. An example close to home is that of the local telephone directory and their expanded "coverage" of physicians. Under the guise of consumer advocacy, yellow page advertisements listing physicians by specialty in addition to their usual corporate or individual name, are also published, forcing physicians to list themselves under multiple categories in multiple books which adds to the cost of doing business. Who in essence pays for all this advertising? The patient, of course, in one way or the other. This "overhead" has to be met by increased revenues which is either indirectly from patients through increasing costs for insurance coverage or directly for patients not so covered. This adds to the further escalation of medical fees which so concerns the public.

The key question to be answered is whether these forms of advertising are truly cost effective? It would seem to me, that the more cost-effective way to enhance one's public image as a professional would be to be more concerned about one's patients which in

turn will be reflected in more patient and physician referrals. No matter how many advertisements on television, radio or newspaper one produces, repeat business will be determined by the kind of service that one provides. There is no question that advertising may produce more new patients, but how many of those patients will remain longterm? Endurance is best accomplished by giving individual care, showing concern and compassion for patients. Patients do not necessarily want the brightest, the most astute or the most handsome physician. What they want is a concerned physician and that takes an effort which many of us have stopped giving. The old saying, "the best doctor is the one who thinks of you when you're not sick" still holds true today; it is probably the best investment in advertising a physician can make.

Marshall B. Block, M.D.  
Editor

## Human Experimentation and the Law

Dating to Galen in 200 A.D., the traditional freedom of investigators to conduct clinical research using human subjects has recently collided with the emphasis of our current culture on equality of the individual and the challenge to arbitrary authority over personal rights and welfare. These factors have precipitated an increased sensitivity to human values that are at stake in research activity whether sociological, psychological, educational, or medical in nature. Since society has learned to expect and almost demand a continuity of developments which influence the length and quality of life resulting from research, an exciting moral revolution has developed which focuses on inflated value expectations combined with an upheaval of attention to the ethics of manipulating human subjects in research. Consequently, codes for ethical conduct in human experimentation have evolved to resolve the potential conflict between the interests of the subject and those of the investigator without impeding the advance in knowledge or sacrificing ethical imperatives.

Public Law 93-348, known as the National Research Act, enacted by Congress in 1974, translated these codes of ethical conduct into legal terms by providing guidelines and regulations which place limitations on the latitude of

discretion allowed investigators and institutions in conducting biomedical and behavioral research. The Act is concerned primarily with formalized protocols for activities and research projects involving groups of human subjects and provides for an institutional review committee to scrutinize research proposals. The regulations are neither concerned with experimental approaches per se nor with essential patient treatment needs as long as the studies are conducted in a manner consistent with good and reasonable therapeutic design even though innovative. While the Act mandates a review committee, it neither charges the committee to guarantee the integrity of the investigator nor insulates the investigator from liability for harm caused by negligence in meeting the standards applicable to the activity involved. The committee's emphasis is on the investigator's responsibility to design and conduct studies within established ethical and legal principles.

An institutional review committee, known as the Human Subjects Committee, exists at the University of Arizona and reviews all protocols for human research. The committee considers the protocol's ethical aspects, assures existence of a favorable risk to benefit ratio, and determines whether a legally structured and proper informed consent will be obtained from each subject. Following necessary revisions and approval, the committee exercises periodic monitoring to ensure protection of the subject's rights and welfare with due consideration for the pragmatic aspects of the investigator's objectives. The committee membership is composed of personnel with diverse backgrounds to provide objective scrutiny by individuals with a wide range of perspectives. It is represented by physicians, nurses, sociologists, humanists, and members of the legal profession. In arriving at considered and rational judgments, the committee treats freedom of inquiry as we treat freedom of speech — to restrain when there is real and current danger. In its review, the committee makes certain that the subject is provided in the consent form, information on the purpose and details of the experiment, the possible hazards involved, the opportunity to ask questions, and the option to refuse or withdraw participation without recrimination so that subjects can retain control over their lives, welfare and privacy.

In actual operation over a period of years, the committee has experienced few occasions where latitudes of discretion have been exceeded, thus raising doubts for the need for moral pontifications and justice. However, history has provided evidence that some controls are needed to assure experimental restraint for the



same reason that we all carry keys, yet recognize the fact that there are few thieves among us. The major emphasis in the review process has been on the contents of the consent form to ensure provision of full information to the subject and to present clearly all options before signing. Perhaps the most important factor in this entire endeavor is the individual and collective capability of the members of the Human Subjects Committee to arrive at common sense decisions reflecting sound professional judgment by reasonable people. Several years of decision making at the University of Arizona has earmarked the local committee as having empathy for both the researcher and the human subject without obstructing advances in knowledge — a key objective of every institution of higher education.

Milan Novak, M.D., Ph.D.  
Lecturer, Internal Medicine  
Chairman, Human Subjects Committee

Louis J. Kettel, M.D.  
Dean, College of Medicine



**ARMA**

**President**  
**John T. Clymer, M.D.**

**President-Elect**  
**Clyde W. Kurtz, M.D.**

**Vice President**  
**John E. Oakley, M.D.**

**Secretary**  
**Earl J. Baker, M.D.**

**Treasurer**  
**Neopito L. Robles, M.D.**

**Executive Director**  
**Bruce E. Robinson**

**Publishing Committee**  
**Marshall B. Block, M.D., Chairman**  
**Burnell R. Brown, M.D.**  
**C. Herbert Fredell, M.D.**  
**Benjamin K. Harris, M.D.**  
**Jonathan M. Levy, M.D.**  
**William B. McGrath, M.D.**



***In Memoriam***

## **Stanley F. Farnsworth, M.D.** **1906 - 1980**

The son of a general surgeon, Dr. Farnsworth was born in Missoula, Montana and completed part of his secondary education there. In 1921, his father retired, the family moved to Berkley, California, where he finished high school and attended the University at Berkley. He entered medical school at Loma Linda and after some misadventures, finally received his M.D. degree and did a two year residency at the Alameda County Hospital in Oakland. He then entered the United States Public Health Service and was stationed at a hospital in Springfield, Missouri in charge of a ward of tuberculous patients. Soon he resigned, returning to California and obtained a position with the California State Health Department and remained in public health and administrative medicine through 1936.

For the next nine years, he was with the California Health Department, then went back to Hopkins for a masters degree of public health. He returned to the U. S. Public Health Service, and was detailed to the rural public health program, more specifically to the migratory medical care program. It was during this time he first visited Phoenix and Arizona, going to Eloy, where he was in charge of organizing a migratory health program for the sixty or seventy thousand seasonal workers. This was before the era of mechanical cotton pickers and most of these people were employed in the cotton industry.

He was appointed health officer of Oakland, California and was there until 1949. At that time he was appointed a consultant to the World Health Organization and was sent to Egypt to do a survey of the ministry of health and to help develop local health programs. Returning to Oakland in 1951, he went on a permanent basis with the Pan American Sanitary Bureau of the World Health Organization and to Guatemala where he was assigned for five years in charge of all of the Central American country programs. This encompassed the full range of medicine, developing schools of nursing, schools of medicine, helping countries to organize their own public

health programs, medical education, preventive medicine, hygiene and nutrition.

In 1956, he was sent back to Egypt by the World Health Organization to head their regional office. In 1958, they returned to the states, at this time the Health Department of Phoenix was seeking a new director. The local committee consisted of Ben Frissell, M.D., Milt Gan and Tom Sullivan, the latter on the Board of Supervisors of the county. Milt Gan was with the community council, Dr. Frissell was a representative of the County Medical Society. One of Dr. Farnsworth's many successful local missions was the amalgamation of the departments of health in the cities of Phoenix and Mesa, and also the Maricopa County Health Department in 1957-58. At this time Stan's wonderful administrative attributes and abilities came to the fore. He never accepted a negative answer, was very astute in his dealings with the political forces, and never waived from his long range goals. He developed the administration of the department to improve all services, particularly communicable disease prevention and control, the control of tuberculosis, well baby clinics and improved sanitation generally. He was instrumental in working with various cities administrative departments to develop a sanitary sewer system for the entire Valley, and to aid in the supervision of ninety-six separate water companies, of which most were amalgamated into various city water companies.

Because there were no physicians in Buckeye, Gila Bend and only two in Wickenburg, public health clinics were established in these outlying areas. (This raised some eyebrows in the private sector, but the "void was filled"). It was a short jump from preventive medicine to therapeutic medicine in the county hospital and outlying clinics established under the leadership of the department of health. Farnsworth's amalgamation of the county hospital into the Maricopa County Health Department may not have been a first in the United States, but it certainly was one of the better models and is still functioning the same way.

These are some of the highlights of the busy, exciting, and productive life of this great physician. With all of this, he never lost his concern and empathy for the individual patient and citizen.

John W. Kennedy, M.D.

I met Stan Farnsworth relatively late in his career. To be specific, in 1968 when I was with the Center for Disease Control on assignment to the Arizona State Health Department. It was the general belief around the State Health Department that what Dr. Farnsworth wanted generally happened and what he didn't want rarely happened. Many of the readers will have known Dr. Farnsworth longer than I and can recognize a certain truth in that belief.

Dr. Farnsworth's career in public health began in 1935 when he joined the California State Department of Public Health, moving to Oakland as health officer in 1941. Dr. Farnsworth left the Oakland Health Department to work with the World Health Organization first in Central America and then in the Eastern Mediterranean. As coordinator for these activities he was responsible for initiation of a program of early diagnosis and treatment of glaucoma; in the Central American countries he developed a program which produced a marked reduction of mosquitoes capable of transmitting malaria and yellow fever.

He was committed to the prevention of disease, whether by mass immunization against yellow fever in Nicaragua or cosponsoring with the Medical Society, the 1962 "Sabin Sunday" program in Maricopa County in which seventy-five percent of the county's population was immunized against polio. He believed that treatable disease should be treated regardless of a person's income and he strengthened programs in tuberculosis and venereal disease. He believed that basic medical services should be available to all and obtained support for mobile medical and dental clinics to serve rural areas.

He believed in regional environmental planning for sewage solid wastes and was instrumental in implementing the systems now in place.

In the 1970's he strengthened programs in alcohol and drug abuse. He combined the health department and hospital into a unified Department of Health Services with outlying clinics providing primary and preventive services while the hospital provided emergency, specialized outpatient, and inpatient services.

With the support of the medical community, he was responsible for spearheading the effort to upgrade or develop county health facilities and for improving the scope and quality of the training programs. He retired in 1975 to

pursue his many interests.

Those who worked with him appreciated his vision, his wisdom, his humor, and his political sense of timing. Those who opposed him frequently found themselves involved in committees to study or implement the programs they opposed. All respected him for his honesty and dedication. His standards were high and in gaining his approval, we also gained our own. The task was more rewarding by being more difficult.

He leaves his wife Nonnie, his daughters Leslie and Anne, his friends and colleagues saddened by the loss but gladdened by the experience of knowing him.

Dr. Farnsworth was a modest man — his walls were not adorned by his many plaques and honors; he was generous in giving credit to others; he even refused a retirement party.

He would doubtless disapprove of this tribute but he may forgive me if I can assure him on all our behalf that we won't dwell too long on his memory and will get back to work doing what he believed in — living life to the fullest.

George B. Rowland, M.D.  
Director, Maricopa County  
Department of Health Services





The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

### GOVERNMENTAL SERVICES COMMITTEE

Meeting of the Governmental Services Committee of the Arizona Medical Association, Inc., held October 8, 1980, at 810 West Bethany Home Road, Phoenix, convened at 6:58 p.m., Louis C. Kossuth, M.D., Chairman, presiding.

#### Chairman's Report

The Chairman informed the Committee that the resolution 2-79 adopted by ArMA's House of Delegates concerning composition of HSA's Board of Directors providing for the deletion of "indirect providers" was adopted by the AMA House of Delegates and successfully lobbied in congress.

Dr. Kossuth also reminded the Committee of the success of the workshop held last January on "Understanding and Participating in Health Planning" noting that a follow up workshop should be considered.

Dr. Kossuth informed the Committee of his concern regarding physician involvement with Appropriateness Review and Project Review with the HSA and Statewide Health Coordinating Counsel. SHCC is reviewing for appropriateness the E.S.R.D. problems currently and he has asked the Professional Committee's assistance with Emergency Medical and Behavioral Health which will come up in the near future.

#### Proposal for Reviewing Governmental Regulations - State and Federal

The Committee discussed at length a proposal by Dr. Kossuth to designate a section of the Governmental Services Committee to review governmental rules and regulations concerning medical and health care both at the state and federal levels.

*It was moved and carried to establish a section on Rules and Regulations of the Governmental Services Committee for the purpose of reviewing proposed rules and regulations concerning health and medical care within our state as well as federal level, preparing appropriate position paper for approval by the Executive Committee or the Board of Directors in behalf of ArMA and to direct staff to maintain a calendar on proposed*

*rules and regulations referring them to the appropriate section for review and comment.*

#### Position Paper on Health Planning

Dr. Kossuth presented a draft position paper on health planning for the committee to consider. After considerable discussion the following position paper was approved in principle:

#### ArMA Policy on Health Planning

1. We believe that appropriate local health planning can make a constructive contribution to both cost containment of medical care and quality of health to the citizens of Arizona.

2. The Association views with concern the federal dominance of the planning process. The amendments (PL 96-79) to the 1974 Act (PL 93-641) gave a little more authority to the state but HSA authority did not expand. We believe the problems of Arizona can not equate to those of the great metropolitan areas with blocks and square miles of slum housing populated by thousands. These conditions do not exist in Arizona but conclusion from studies of health needs of such population are too frequently applied and equated to Arizona.

3. The physician community of Arizona has great difficulty in communication with health planning and especially health planners. Unfortunately we do not speak a common language. Unless words are precisely (and hopefully objectively) defined, communication can not occur. Both parties must exactly understand what the other party is saying. We recognize obscurantism and obfuscation as a part of political activism, but such activities have no place in responsible planning for the health of Arizona residents.

It is therefore extremely important that the health planners, with all health planning agencies, HSA's, SHCC, and other quasi-government, adopt the "discursive dictionary of health care" as was recorded by this Association in early 1979.

4. Physicians desire to participate in the health planning process. Unfortunately health planning policies and procedures often preclude fulfillment of this desire to be of public service. Examples are:

a. Often meetings are scheduled during the physicians office hours. Such scheduling is inappropriate for indigencies of patient care. Physicians are most willing to participate during evening hours and on weekends.

b. Meetings are often called on short notice. Even with a 10-day notice is is most difficult for a physician to readjust his appointment schedule to the satisfaction of patients whose

appointments must be cancelled and rescheduled. For some patients it is imperative for their welfare that they be seen at the scheduled time. Meetings called with less than 21 to 30 day notice must be scheduled for evenings or weekends.

c. Documents to be studied are too often voluminous, full of jargon, obfuscation and mystification, but precious little real knowledge supported by data that can be objectively analyzed. There is a clear need for a one page summary of each section of a 1/2" - 3" thick document that summaries:

(1) The problem,

(2) Includes the objective data that establishes the need,

(3) And the recommended action.

(4) If a section of the plan is adopted, a projective analysis based on objective data indicates that X number of deaths will not occur; or X number of hospital admissions will not occur; or a reduction of X number of days of non-production will occur, is necessary.

5. The Association regrets the lip service given to cost containment in Project Review activities of the Health Systems Agencies. For each project there must be a concise clear statement: this program will provide xxx services to xxx patients, this will reduce death, disability, and loss of productivity by an estimated xx percent annually, and this is what it will cost per patient to whom these services are rendered.

6. The Association regards with concern the implication of Appropriateness Review. We support the basic concept and recognize that the findings of Appropriateness Review, both criteria and standards, and the application of these to existing resources may be desirable. However, there is no provision to examine the cost of those existing resources in terms of cost effectiveness and cost benefit. The Association supports the concept that appropriateness must include an examination of cost and benefit.

The Association again notes the lack of objective definition of terms that are basic to Appropriateness Review. If the standard for appropriateness is X procedures, is X minus one or X plus one inappropriate? The Association supports a concept of appropriateness which provides a numerical criteria to be X plus or minus 10% or 20% or some other percentage.

7. Despite the problems we see in physician participation, the Association urges each County Medical Society to have an active committee on health planning, and each member to exercise his civic responsibility by participation in the local planning process.



It was moved and carried to distribute the above proposed policy on Health Planning to the constituent County Societies for their review and comment.

## PROFESSIONAL COMMITTEE

Meeting of the Professional Committee of the Arizona Medical Association held December 10, 1980, at 810 West Bethany Home Road, Phoenix, convened at 6:45 p.m., Joseph W. Hanss, Jr., M.D., Chairman, presiding.

### Section on Aging and General Medicine

#### Definition of Death

Dr. Hanss informed the committee that the Professional Committee directed a recommendation concerning the definition of death to the Board of Directors for their consideration and possible legislative activity. During the Board of Directors meeting held October 4, 1980, upon recommendation of legal counsel, the Board re-referred the subject back to this committee for further study. Legal counsel's opinion is that a statutory definition of death is unnecessary in Arizona. Therefore, a draft memorandum, which has been reviewed and approved by counsel, was presented to the committee which is to inform the membership of the definition of death in Arizona.

It was moved and carried to recommend to the Board of Directors that the following memorandum "Definition of Death" be approved and disseminated to the membership:

#### Overview

In recent years there has been considerable discussion concerning an acceptable definition of death. Death has traditionally been determined on the basis of absence of cardiac and respiratory functions. However, modern technology permitting the artificial maintenance of cardiac and respiratory functions after all other bodily functions have ceased (including unaided cardiac and respiratory functions), has caused a re-examination of this traditional concept of death beyond cardiorespiratory failure.

A basis for determining death predicted on an irreversible cessation of all the functions of the brain was developed. Absence of express legal recognition of brain death as a medically accepted criteria upon which death may be determined, however, created a void in law with regard to the legality of the concept. Combined with the prevailing malpractice climate, physicians may be hesitant to make determinations of brain death due to legal uncertainties and possible time consuming litigations.

The American Medical Association, American Bar Association, The National Conference of Commissioners on Uniform State Laws as well as State Societies and legislatures have struggled with the problem of defining death. Many states have enacted legislation providing for a legal recognition of the brain death concept. Some state statutes are terribly restrictive, some require consultation, some appear to exclude the traditional cardiorespiratory failure concept, while others provide that a physician who makes a determination of brain death may not participate in the removal or transplantation of any organs. In some states the courts have been allowed to recognize brain death as a valid basis upon which to declare death. It is clear that each state legislature and court considering a definition of death included its own approach to a medical diagnosis.

#### Arizona Supreme Court Decision

In October, 1979, the Supreme Court of Arizona in *State v. Fierro* (124 Ariz. 182, 603 P.2d 74) considered the definition of death and in its decision adopted all of the following definitions:

1. The common law definition of death from Black's Law dictionary 488 (4th ed. 1968) —

"The cessation of Life; the ceasing to exist; defined by physicians as a total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereon, such as respiration, pulsation, etc'. . ." thus, according to common law, as long as the person was breathing and the blood was flowing through his viens he was not dead even though his brain was no longer able to function."

2. Harvard Medical School definition of Death —

"Cessation of life as 'brain death' which takes place when there is (1) unresponsiveness to normally painful stimuli; (2) Absence of spontaneous movements or breathing; and (3) Absence of Reflexes."

3. National conference of commissioners on uniform state laws definition of death —

"For legal and medical purposes an individual who has sustained irreversible cessation of all functioning of the brain including the brain stem, is dead." The uniform law provides that a determination of brain death must be made "in accordance with the reasonable medical standards."

4. The court further provided —

"A statutory definition is not necessary . . . both the fact of death and its cause can be apparent to an ordinary layman when the condition of the body or the nature of the wound is such that no other determination is reasonable. When

these obvious factors are present, it is not necessary that experts be required to testify in order to establish death and its cause. It is only where the fact of death and its cause is beyond the understanding of the average layman that expert testimony may be necessary."

#### Conclusion

The Board of Directors of the Arizona Medical Association has determined that a "Statutory Definition of Death" is unnecessary and at this time undesirable in the State of Arizona. Arizona courts have recognized the prerogative of a physician to declare a person dead based on (1) cardiorespiratory failure, or (2) brain death determined in accordance with reasonable medical standards. There is much to be said for not statutorily defining death or any other similar medical procedure or definition that is growing or expanding. If there is no statute, an expanded definition by "reasonable medical standards" will become instant law in a court decision. If there is a definition in statute, it will not change unless and until the statutory definition is amended.

#### Determination of Death in Nursing Homes

Dr. Hanss informed the committee that as a result of nursing care institutions concern over pronouncement of death, a meeting was held chaired by Dr. Hagan during which time it was determined to develop a joint position paper "Care After Death." The meeting included the Nursing Association, Nursing Home Associations, and interested physicians. The following proposed joint position paper resulted:

#### Background

For a number of years the Arizona Department of Health Services required through its rules and regulations that a person who dies in a nursing care institution be pronounced dead by a physician. Although a physician is required by statute to certify, by signature, the cause of death within 72 hours. Arizona statutes do not provide for a pronouncement of death by a physician. The Department of Health Services regulation requiring a physician to pronounce death was repealed April 16, 1980. Nursing care institution administrators and directors of nursing services seek guidance in how to properly care for patients when death occurs.

Prior to the repeal of the Department of Health Services regulation that every person who dies in nursing care institutions must be pronounced dead by a physician, it was clear (by law), the attending physician's final responsibility was to visit the patient and diagnose the expiration. In lieu of



visitation by the attending physician, an alternate physician was to make the final diagnosis. On many occasions, it was necessary to transport the patient by ambulance to a hospital emergency room for examination and pronouncement of death by a physician attending the emergency facility. This is a costly and unnecessary procedure.

#### **Physician Responsibility**

It is the position of the Arizona Medical Association that it is the attending physician's final responsibility to the patient and the patient's family to make the final diagnosis of expiration. If it is not possible for the attending physician to be present at death or immediately following death, arrangements should be made by the attending for an alternate physician to be available. On occasion the diagnosis and functional status of the patient may indicate that only an assessment by the Registered Nurse personnel in a nursing care institution is necessary and the attending physician may accept their determination. To routinely order transportation of a patient presumed dead to an emergency room facility by ambulance for examination by a physician is unacceptable.

#### **Nursing Services Guidelines**

The following are offered as guidelines to nursing care institutions, administrators, and the director of nursing services when death occurs:

1. When death occurs the Nursing Supervisor and another Registered Nurse will assess absence of vital signs which include the following:

- a. No active response or response to stimuli
- b. No respiration
- c. No blood pressure
- d. No pulse
- e. No apical heart sound
- f. Pupils dilated and fixed

- g. Record the time in progress notes
2. The Charge Nurse will notify the attending physician and inform of the assessment and *request visitation*.

3. When the attending physician is unable to visit and arrangements are not made for an alternate physician to visit, determine whether the attending *physician will accept* the Registered Nurse's assessment of absence of cardiopulmonary function and sign the death certificate. Obtain the physician's order for discharge and notify the family, chaplain or clergy, and mortuary of preference.

4. When the attending physician is unable to visit and arrangements are not made for an alternate physician to visit and the attending *physician will not accept* the Registered Nurse's assessment of absence of cardiopulmonary function, it is the attending physician's responsibility to make

arrangements for diagnosis of expiration with the hospital emergency room of his choice. The Charge Nurse will obtain the physician's order for transfer and make arrangements for the ambulance. The Charge Nurse will also determine whether the attending physician will sign the death certificate or if it is necessary to arrange for signature by the emergency room physician. The Charge Nurse will then notify the family, chaplain or clergy, and mortuary of preference.

5. When the attending *physician refuses* to make arrangements for diagnosis of expiration, the Charge Nurse is to record this fact in the progress notes and make arrangements to transport the patient to the nearest hospital emergency room. The Charge Nurse will also determine whether the attending physician will sign the death certificate or if it is necessary to arrange for signature by the emergency room physician. The Charge Nurse will then notify the family, chaplain or clergy, and mortuary of preference.

*It was moved and carried to recommend to the Board of Directors adoption of the proposed joint position paper "Care After Death."*

#### **Section on Emergency Care and Disaster Medicine Responsibilities & Interrelationship of Paramedics and Physicians**

Dr. VanNostrand briefed the committee on existing problems faced by physicians and paramedics at the scene of emergencies. Lengthy discussion ensued regarding transportation, responsibility, the attending physicians concerns, and the physician on the scene offering assistance. The many concerns developed could be handled with proper communication. It was suggested by the committee that the Section on Emergency Care develop a policy paper with input from all concerned including family physicians, surgeons, and Emergency Room physicians for presentation at the next Professional Committee.

#### **DHS Proposed Rules and Regulations on Emergency Health Care**

Dr. VanNostrand informed the committee that proposed Rules and Regulations dealing with Certificate of Emergency Centers, Emergency Medical Technicians, and Training Programs have been considered during public hearings. The hearing panel of the Department is now in the process of considering the testimony and the written presentations received. Most of the testimony and written presentation appeared to be of negative nature and it would therefore seem to be appropriate that any new proposed Rules and Regulations receive additional public input.

*It was moved and carried that the new director of the department of health services be petitioned to publicize for open hearing any new proposals for Rules and Regulations concerning Certificate of Emergency Centers, Emergency Medical Technicians, and Training Programs.*

#### **Section on Health Education Health Education Symposium**

Dr. Niccum briefed the committee on the Health Education Symposium which was held in Tucson. Attendance was very poor. The Auxiliary is providing health education materials through 3rd grade. They also have available for distribution a pamphlet, "Is He Sick, Should I Send Him To School," through the Arizona Medical Association.

*Received for Information Only.*

#### **Section on Poison Control Poison Control**

Dr. Kunkel informed the committee that the Poison Control legislation approved by the Professional Committee last year was adopted and signed into the law by the Governor. The Poison Control System has engaged in a number of educational programs and many more are on the board. The system is working very well and we are looking forward to continuing this exciting new adventure. *Received for Information Only.*

#### **Section on Public Health Communicable Disease Regulations - Rubella Immunity**

Dr. Hanss informed the committee that a sub-committee has been working with the Arizona Hospital Association and the Department of Health Services concerning Rubella Immunity for health care personnel. The Department of Health Services had suggested through Rules and Regulations that health care personnel be mandatory screened for Rubella Immunity approximately a year ago. However, through the urging of the Professional Committee and the Arizona Hospital Association, a memorandum was distributed by the Department making the following recommendations:

1. Such persons, male and female, be screened for immunity to rubella virus infection before being employed in such settings.

2. If such persons, male or female, are found susceptible to rubella virus infection, rubella immunization be required before employment unless they are or may be pregnant or have a medical or religious contraindication to such immunization.

3. Should rubella be diagnosed in any employee of a hospital, clinic, or physician's office, the county or state health department should be notified immediately by telephone so that measures to reduce transmission of



rubella infection among employees and to patients can be implemented.

In a meeting with the ArHA and DHS immediately preceding the Professional Committee, it was suggested that the recommendation promulgated by the DHS be approved by this Association and the Hospital Association and that the medical community be urged to follow them.

*It was moved and carried to recommend to the Board of Directors that the recommendations distributed by the Department of Health Services concerning rubella immunity be approved by the Arizona Medical Association and disseminated to its membership.*

#### **Premarital Examination**

As a result of the grievance considered during the previous meeting concerning an excessive charge for physical examinations as well as the serological test required by law, we contacted George B. Rowland, M.D., Director of Maricopa County Department of Health Services. Dr. Rowland submitted a great deal of information substantiating the Departments "position that pre-marital serological testing is not a useful case finding technique, cost a fair amount of money, and should be removed from the law." Dr. Rowland informed the committee that there may be reluctance however from the State Department of Health Services and other county Health Departments in a repeal effort. After considerable discussion, it was determined to seek additional statistics from Maricopa County as well as Pima County Departments of Health Services prior to making any recommendation to the Board of Directors concerning a repeal effort.

#### **Immunization Record**

It is noted that the American Medical Association has endorsed a standard immunization record form which was developed by the National Immunization Record Workshop and has encouraged all states to adopt this form as the official immunization form of their state. The Arizona Medical Association has already endorsed a life time health and immunization record with is substantially the same as the standard form endorsed by AMA. *Received for Information Only.*

#### **Section on Safety**

##### **Child Passenger Restraints In Automobiles**

Dr. Pullen informed the committee that the State Pediatric Society is once again pursuing legislation which would require child passenger restraints in vehicles for children under the age of five. Similar legislation has been introduced the past two sessions by the Arizona Medical Association. It is

understood that the Department of Health Services, the Governor's Highway Safety Council, Department of Public Safety, as well as the Medical Societies are interested in having this legislation become law this year. Therefore, Dr. Pullen suggests the Association's active support.

*It was moved and carried to recommend to the Board of Directors and the Legislative Committee active support of legislation requiring seat belt restraints for infants and children.*

#### **Section on Sports Medicine**

The committee welcomed Thomas Foerster, M.D., upon his appointment as Chairman, Section on Sports Medicine. Dr. Foerster informed the committee on the progress of the 7th Annual Sports Medicine Symposium. The tentative dates are April 24 and 25 at the Adams Hotel. Greater emphasis is being placed on youth sports activities than in previous years. A preliminary program was reviewed. Dr. Foerster also informed the committee that the bulletin "Sports Illness Treated" is being revived and that Leland Fairbank's, M.D., has agreed to edit the bulletin and hopes to have the first edition ready for distribution in the next few days. Although primary emphasis is on the symposium, the Section on Sports Medicine is also interested in proper pre-participation physicals, physician attendance at sports activities, and certificate of athletic trainers. It was acknowledged that this is a very active committee.

#### **Correspondence**

##### **Appropriate Review**

The Governmental Services Committee informed the Professional Committee by letter of October 2, 1980 of its concern with Appropriateness Review required by the 1974 Health Planning Act, PL 93-641. In the next two years, Appropriateness Review will be necessary for Emergency Medical Care and Behavioral Health Services, two areas for which the Professional has direct concern. The Governmental Services Committee requests the appropriate section of the Professional Committee to review this health planning activity for proper physician input. It was determined to assist the Governmental Services Committee in any way possible in the provision of physician input into the Appropriateness Review problem requested by the Health Planning Act.

##### **BOMEX Proposed Rules and Regulations**

The Executive Committee by letter of October 7, 1980, requests the Professional Committee to review, study, and comment on rules and regulations being proposed by the

Board of Medical Examiners. It is noted that the proposed rules forwarded by memorandum of November 5, 1980, are complex and a detailed explanation from BOMEX would be helpful. Therefore, it was determined that a sub-committee be appointed to study the proposed rules in depth. The sub-committee would include Dr. Hanss as chairman, Drs. Pullen, Kurtz and Sheldon Marks from the Professional Committee. Also, it was determined to ask past chairmen of the Board of Medical Examiners and Presidents of ArMA to serve in this committee.

#### **Joint Meeting of Executive Committee and Ad Hoc Long Range Planning Committee**

The joint meeting of the Executive Committee and Ad Hoc Long Range Planning Committee of the Arizona Medical Association held at 810 West Bethany Home Road, Phoenix, Arizona, on Friday, December 19, 1980, a quorum being present, convened at 6:55 p.m., John T. Clymer, M.D., President and Chairman of the Executive Committee, presided.

#### **Ad Hoc Long Range Planning Committee Proposed Goals**

Dr. Clymer turned the meeting over to Dr. Oakley as Chairman of the Ad Hoc Long Range Planning Committee and the committee proceeded to review, discuss and finalize the preliminary draft of goals previously submitted for review.

*It was moved and carried that the purpose of the Arizona Medical Association as stated in the current articles of Incorporation (Article III(a)) be retained as the basis for this committee's endeavors in formulating long range goals and objectives for the Association.*

*It was moved and carried adopting the following as the preliminary goals on which this committee would initiate its planning for a workshop which would eventually develop firm goals, as well as objectives, for the Arizona Medical Association's Long Range Plan.*

*Goal I To represent the medical profession in Arizona (to include medical students).*

*Goal II To provide individual members benefits and services to aid them in their professional pursuits.*

*Goal III To be the advocate of the membership in their concerns with the legislative, administrative and judicial arms of the State Government.*

*Goal IV To represent the membership in matters pertaining to medical*



education, scientific affairs and promotion of the art and science of medicine.

*Goal V To promote optimal health and medical services to the citizens of Arizona.*

*Goal VI To determine the most effective organizational structure for the Arizona Medical Association.*

*Goal VII To promote and elevate the standards of medical ethics.*

*Goal VIII To represent the membership in matters pertinent to the economics of medicine.*

#### **Workshop**

In attempting to set guidelines for the establishment of a workshop to be conducted for the purpose of finalizing goals and objectives for a long range plan, the committee determined that the Colorado plan would be followed as closely as possible, that the participants, to include members of ArMA leadership as well as non-members, would be selected by the Chairman with assistance from the committee, and that the workshop would be a one day session, with the date and location to likewise be determined by the Chairman. Once all the planning had been completed and a chairman for the workshop selected, it was agreed that a mailing should be made informing the membership as to the issues and matters under consideration, the purpose of the workshop, and the ultimate outcome anticipated.

#### **Executive Committee**

##### **Building Fund Delinquencies**

Misty Coumbe reported to the committee on the members who were presently delinquent in the payment of their building fund assessment, apprising the members of the format followed in the billing for such assessments. Following a discussion as to how to proceed.

*It was moved and carried that a final letter be forwarded to those members presently delinquent in the payment of their building fund assessment, advising them that, by reason of their delinquency, the Association's policy dictates their being dropped from membership; however, that their membership is valued and should their non-payment be due to financial hardship, a waiver of the assessment could be granted upon receipt of written request stating that, because of financial hardship, such waiver is desired.*

##### **White House Conference on Drugs**

Dr. Clymer reported to the committee on his recent attendance at the White House Conference on Drugs, stating that the meeting was held for the purpose of alerting the leadership of various community segments, both medical and governmental, of the

diversion of drugs by well-intending physicians who are deluded by informed patients, and to create a liaison among the different agencies in an attempt to minimize and eventually eliminate the existing problem. Dr. Clymer extended his appreciation for the Association sending him to this very informative meeting and advised that he was continuing contact with the other representatives from Arizona and basing his January editorial for *Arizona Medicine* on this subject matter.

#### **Outstanding Nurse Award**

The committee reviewed a request from the Arizona Nurses' Association for co-sponsorship of the 1981 Outstanding Nurse Award to be made in November of 1981.

*It was moved and carried to advise the Arizona Nurses' Association that, while ArMA wholeheartedly supports the Nursing Role in the State of Arizona and certainly feels that a selection by one's peers as outstanding nurse of the year is one of the greatest compliments which can be paid, no funds are available at this time for financial contribution to or co-sponsorship of the 1981 outstanding Nurse Award. Arizona Department of Health Services*

The committee was advised that James E. Sarn, M.D., had recently been appointed as the new Director of the Arizona Department of Health Services and it was determined that a congratulatory letter be sent to Dr. Sarn offering whatever assistance the Association might be to him in his new role. Additionally, it was determined that, from time to time, the Association or its officers might require Dr. Sarn's expertise on mutual matters of interest or concern, and, inasmuch as a personal meeting might be helpful, an invitation would be extended to Dr. Sarn to attend the committee's meeting scheduled for January 9, 1981.

#### **Resolution 1-80**

##### **Reconsideration of Committee Appointment**

Dr. Clymer discussed with the committee his previous appointment of the committee to act under Resolution 1-80 to study county/stated unified membership, advising the members that, in an attempt to allow for greater input on a statewide basis, he would like them to consider new appointments comprised of various district directors and other leaders within the medical community.

*It was moved and carried approving the President's appointment of Kenneth A. Dregseth, M.D., Morton Fuchs, M.D., Ronald S. Gardner, M.D., George L. Hoffmann, M.D., Christopher T. Maloney, M.D., James F. Martin, M.D., Daniel L. Neel, M.D., Edward*

*Sattenspeil, M.D., and Neil O. Ward, M.D. to serve as an Ad Hoc Committee on County/State Unified Membership, as delineated by the House of Delegates under Resolution 1-80, with Dr. Ward to serve as Chairman.*

#### **Mica - Discount to ArMA Members**

Legal opinion dated December 8, 1980 relating to possible discounts by MICA to ArMA members *Received*

In light of the opinion above referred to, it was determined that staff would proceed with a survey of other states who might have investigated or, in fact, achieved a discount from an insurance company to its members.

#### **Other Business**

Ernest A. Born, M.D.

The committee was advised of the recent death of Ernest A. Born, M.D., one of the greatly respected members of the medical profession in Arizona and it was determined that the discussion of establishing an endowment fund be placed in the January 10th Board of Directors' agenda.

#### **N.A.M.E.S.**

The committee was advised by Bruce Robinson that Northern Arizona Medical Evaluation Systems (N.A.M.E.S.) was in the process of finalizing the lease arrangements for the space available in the ArMA Building, such occupancy to be effective as of February 1, 1981.

#### **Practice Management Workshops**

Misty Coumbe advised the committee that the two-day Practice Management Workshops sponsored by ArMA and presented by Conomikes Associates, Inc. in Phoenix and Tucson the week of December 15th were well attended and highly successful.





**Sammy Award Recipients; (left to right) Paul L. Singer, M.D., Julian DeVries, Mrs. Clarence Salsbury, and Grace Middlebrook, R.N., Ed.D.**

Four Phoenix community leaders received the Sammy Award in January. The Sammy Award is the highest honor Samaritan Health Service bestows annually to those who have advanced and expanded programs of quality patient care, furthered medical education or fostered scientific research and development; have made significant contributions to the hospital and health care fields through their efforts and leadership in the community; have made outstanding contributions to the enhancement of Samaritan Health Service — its goals and objectives.

Paul Singer, M.D., Julian DeVries, medical editor for the Arizona Republic, Grace Middlebrook, R.N., Ed.D., corporate director of education for Samaritan Health Service and the late Clarence G. Salsbury, M.D., were honored by Samaritan Health Service and the Samaritan Medical Foundation at the annual Sammy Awards, January 9, 1981 at the Camelback Inn.





## Future Medical Meetings

The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
Phoenix Psychiatric Council  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program, (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott  
Yuma Regional Medical Center

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

### FEBRUARY

#### Update In Ophthalmologic Surgery for the Practicing Physician

February 17, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor: Dester Samaritan Hospital. Contact: Office of CME, Desert Samaritan Hospital, 1400 South Dobson Rd., Mesa, AZ 85020. Approved for hour per hour category one credit.

#### 32nd Annual Western Institute on Epilepsy "Epilepsy In Childhood and Adolescence"

February 17-20, 1981. Reno, Nevada. Sponsor: University of Nevada-Reno, Reno, Nevada. Contact: Continuing Education, College Inn, University of Nevada-Reno, Reno, NV 89557.

#### Advanced Cardiac Life Support Program (Provider)

February 18-20, 1981. Arizona Medical Association. Sponsor: ACEP, Arizona Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Turner, Arizona Medical Association, 810 West Bethany Home Rd., Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

#### Endocrinology 1981

February 19 & 20, 1981. Arizona Biltmore Hotel, Phoenix. Sponsor: St. Joseph's Hospital and Medical Center and the Flinn Foundation. Contact: Daniel S. Duick, M.D., Dept. of IM, St. Joseph's Hospital and Medical Center, P.O. Box 2071. Phoenix, AZ 85001.

#### Emergency Care Update-1981

February 19-21, 1981. U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of CME and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour category 1 credit.

#### Pediatric Developmental Diagnosis

February 19-21, 1981. Arizona Children's Hospital, Tempe, Arizona. Sponsor: U of A College of Medicine. Contact: Christy Snow, Office of CME, U of A Health Sciences Center, Tucson, AZ 85724.

#### Ninth Annual Taos Lung Disease Symposium

February 20-22, 1981. Holiday Inn, Taos, New Mexico. Sponsor: New Mexico Chapter of the American Thoracic Society. Contact: New Mexico Chapter of the American Thoracic Society, 216 Truman, NE, Albuquerque, New Mexico 87108.

#### EKG Interpretation and Arrhythmia Management

February 20-21, 1981. Hyatt Regency Hotel, Phoenix, AZ. Sponsor: International Medical Education Corp. Contact: Stephen Mattingly, Vice President, International Medical Education Corp., 64 Inverness Dr. East, Englewood, Co. 80112. Approved for 13 hours of category 1 credit.

#### Structural Family Therapy Series Structural Concepts

February 20-21, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Center and Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Community Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

#### Fourth Annual Postgraduate Course Advances in Obstetrics and Gynecology

February 25-27, 1981. Scottsdale Hilton Hotel, Scottsdale, Arizona. Sponsor: Maricopa County General Hospital, Dept. of OB/GYN, and Phoenix OB/GYN Society. Contact: Secretary, Phoenix OB/GYN Society, 333 E. Virginia, Ste 222, Phoenix, AZ 85004. (602) 257-9218. Approved for 13 hours of category 1 credit.

#### Personal Instruction Course in Cataract Surgery

February 25-28, 1981. The Eye Foundation, Phoenix, AZ. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 N. 18th Street, Suite 105, Phoenix, AZ. Approved for hour per hour category 1 credit.

#### Prophylactic Antibiotics In Surgery

February 27, 1981. Boswell Memorial Hospital, Sun City, AZ. Sponsor and Contact: Office of CME, Walter O. Boswell Memorial Hospital, 10401 Thunderbird, Sun City, AZ. Approved for hour per hour category 1 credit.

#### 14th Annual Southwestern Clinical Pharmacy

#### Clinical Aspects of Psychotherapeutics

February 27-March 1, 1981. Ramada Inn, Tucson, AZ. Sponsor: U of A College of Pharmacy. Contact: Jack R. Arndt, Ph.D., College of Pharmacy, U of A, Tucson, AZ 85721. Approved for 8 hours of category 1 credit.

### MARCH

#### Management of Infectious Disease

March 2-4, 1981. Doubletree On the Mall, Scottsdale, Arizona. Sponsor: U of A College of Medicine. Contact: Christy Snow, Office of CME, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 11 hours of category 1 credit.

#### Treatment of Rectal & Anal Disease.

March 3, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor: Desert Samaritan Hospital. Contact: Office of CME, Desert Samaritan Hospital, 1400 South Dobson Rd., Mesa, AZ 85202. Approved for hour per hour category 1 credit.

#### 5th Annual Valley of the Sun Dermatologic Symposium

March 4-9, 1981. Scottsdale Hilton, Scottsdale. Sponsor: American Academy of Dermatology. Contact: Phoenix, Dermatologic Society, Jeffrey M. Grant, M.D., 13000 N. 103rd. Ave., Ste 50, Sun City, AZ 85351. Approved for 12 hours of category 1 credit.

#### Crisis and Emergency Pediatrics

March 5-8, 1981. Doubletree Inn, Tucson. Sponsor: U of A College of Medicine. Contact: Hugh C. Thompson, M.D., Pediatrics, U of A College of Medicine, Tucson, AZ 85724. Approved for 17 hours of category 1 credit.

#### Gynecologic Endocrinology

March 6-8, 1981. The Adams Hotel, Phoenix. Sponsor: U of A College of Medicine and Center for Continuing Professional Education. Contact: David Pent, M.D., P.O. Box 33772, Phoenix, AZ 85067. Approved for 14 hours of category 1 credit.

#### Advances in Internal Medicine III:

##### Focus on Immunology

March 6-8, 1981. Granada Royale, Scottsdale, Arizona. Sponsor: Maricopa County General Hospital and Department of Medicine. Contact: Chairman, Department of Medicine, MCGH, 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 17 hours of category 1 credit.

#### Annual Meeting—Society of Head and Neck Surgeons

##### The American Society For Head and Neck Surgery

March 8-11, 1981. The Hyatt Regency Hotel, Phoenix, Arizona. Sponsor: American Society of Head and Neck Surgery. Contact: Gabriel F. de Freitas, M.D., Local Arrangements Chairman, Suite 101, 1901 E. Thomas Road, Phoenix, AZ 85016.



**Advanced Cardiac Life Support Program (Provider)**

March 10-12, 1981. Arizona Medical Association, Phoenix. Sponsor: ACEP, Arizona Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, Arizona Medical Association, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

**Personal Instruction Course in Cataract Surgery**

March 11-14 and 25-28. The Eye Foundation, Phoenix, Az. Sponsor and Contact: The Eye Foundation, 421 n. 18th Street, Suite 105, Phoenix, AZ 85006. Approved for hour per hour category 1 credit.

**Chronic Obstructive Pulmonary Disease**

March 12, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, AZ. 85372. Approved for 1 hours of category 1 credit.

**Seventh Annual Maricopa County General Hospital Urological Seminar**

March 14 & 15, 1981. The Registry Resort, Scottsdale, AZ. Sponsor: Maricopa County General Hospital. Contact: James H. McDonald, M.D., Chief of Urology Service, MCGH, 2601 E. Roosevelt St., Phoenix, AZ 85008. Approved for 12 hours of category 1 credit.

**Third Annual Symposium on Current Concepts in the Management of Acute and Chronic Pain**

March 14 & 15, 1981. Camelback Inn, Phoenix. Sponsor: Maricopa County General Hospital. Contact: George Wallace, M.D., Program Director. MCGH, 2601 E. Roosevelt, Phoenix, AZ 85006.

**3rd Annual Conference on Adjuvant Therapy of Cancer**

March 18-21, 1981. Tucson Convention Center, Tucson. Sponsor: U of A College of Medicine. Contact: Cancer Center Division, Arizona Health Sciences Center, Tucson, AZ 85724. Approved for 25 hours of category 1 credit.

**Structural Family Therapy Series Psychosomatic Illness in Context**

March 20 & 21, 1980. Scottsdale Camelback Hospital, Scottsdale, Sponsor: Philadelphia Child Guidance Center and Arizona Family Learning & Communication Center, Contact: Arizona Family Learning & Community Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category one credit.

**Ski CME Program**

March 21-26, 1981. Vail, Colorado. Sponsor: Desert Samaritan Hospital. Contact: L.A. Rosati, M.D., CME Committee, Dester Samaritan Hospital, 1400 S. Dobson Rd., Mesa, AZ. Approved for 16 hours of category 1 credit.

**Common Office Psychiatric Problems**

March 25, 1981. Walter O. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

**Advanced Cardiac Life Support Program (Recertification)**

March 26, 1981. Arizona Medical Association, Phoenix. Sponsor: ACEP, Arizona Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Turner, Arizona Medical Association, 810 West Bethany Home Rd., Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

**Arthroscopic Surgery of the Knee Seminar**

March 26-28, 1981. The Alamos Resort, Scottsdale, Arizona. Sponsor: Scottsdale Memorial Hospital. Contact: Program Chairman, 7300 Fourth Street, Suite 102, Scottsdale, AZ 85251. (602) 994-8797. Approved for 22 hours of category 1 credit.

**Prophylactic Antibodies in Surgery**

March 27, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, Office of CME, 10401 Thunderbird Blvd., Sun City, AZ 85372. Approved for 1 hour of category credit.

**APRIL**

**3rd Annual Park City Environmental Health Conference: "Legal & Ethical Dilemmas in Occupational Health"**

April 7-10, 1981, Park City, Utah, Sponsor: U of A College of Medicine, Cntr for Occupational Safety & Health; Univ. of Utah, Rocky Mountain Center for Occupational & Environmental Health; Univ. of Texas Health Sciences Center, School of Public Health. Contact: RMCOEH, Ms. K. Bloesch, Bldg. 112, University of Utah, Salt Lake City, UT 84112. Approved for 26.5 hours of category 1 credit.

**The Sportsman as a Patient**

April 7-10, 1981. Keystone Resort, Colorado. Sponsor: Office of the Surgeon General & US Army Medical Dept. & the 5502 Army Hospital, US Army Reserve, Aurora, Co. Contact: Symposium Coordinator, Edgar L. McWethy Jr., USAR Center, Bldg. 820, Fitzsimons Army Medical Center, Aurora, CO 80045. Approved for 10 hours of category 1 credit.

**Current Treatment of the Elderly Psychiatric Patient**

April 22, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor: Walter O. Boswell Memorial Hospital. Contact: Office of CME, Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, AZ 85372. Approved for hour per hour category 1 credit.

**Fourth Annual Arizona Emergency Medicine Symposium**

April 22-24, 1981. Safari Convention Center, Scottsdale, Arizona. Sponsor: American College of Emergency Physicians, Arizona Emergency Medical Systems, Inc., The Phoenix Chapter of Emergency Department Nurses Assn. and Arizona EMT Assn. Contact: Sherry Krentz, RN., Chairman, Arizona Emergency Medicine Symposium, AEMS, 301 W. Osborn Rd., Ste 112, Phoenix, AZ 85013.

**Training in Structural Family Therapy Families with Adolescents**

April 24-25, 1981. Scottsdale Camelback Hospital, Scottsdale. Sponsor: Philadelphia Child Guidance Clinic & Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

**Vectorcardiography (An Advanced Workshop)**

April 29, 30 & May 1, 1981. Sponsor: American College of Cardiology and Good Samaritan Hospital Institute for Cardiovascular Diseases. Contact: Registration Secretary, Extramural Programs Department, American College of Cardiology, 9111 Old Georgetown Rd., Bethesda, MD 20014.

**MAY**

**Recurrent Infections**

May 12, 1981. Desert Samaritan Hospital Mesa, Arizona. Sponsor: Desert Samaritan Hospital. Contact: Office of CME, Desert Samaritan Hospital, 1400 S. Dobson Rd. Mesa, AZ 85202. Approved for hour per hour category 1 credit.

**Structural Family Therapy Series Working with Single Parent Families**

May 15-16, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Clinic & Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

**The Critically Ill Child**

May 15-16, 1981. St. Joseph's Hospital & Medical Center, Phoenix, Arizona. Sponsor: St. Joseph's Hospital & Medical Center, Pediatric Educ. Dept. Contact: Pediatric Education Department, 350 W. Thomas Road, Phoenix, AZ 85001. Approved for 12.5 hours of category 1 credit.

**Microvascular Surgery**

May 26, 1981. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

**Insulin Pump**

May 27, 1981. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

**American College of Physicians, Interim Meeting**

May 29-31, 1981. Little America, Flagstaff, Arizona. Sponsor: American College of Physicians. Contact: Alan Gordan, M.D., 2200 N. 3rd St., Phoenix, AZ 85005. Approved for hour per hour category 1 credit.





**works well in your office...**

## **NEOSPORIN® Ointment** (polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**works just as well in their homes.**



- It's effective therapy for abrasions, lacerations, open wounds, primary pyodermas, secondarily infected dermatoses.

- It provides broad-spectrum overlapping antibacterial effectiveness against common susceptible pathogens, including staph and strep.

- It helps prevent topical infections, and treats those that have already started.

- It contains three antibiotics that are rarely used systemically.

- It is convenient to recommend without a prescription.

**NEOSPORIN® Ointment—for the office, for the home.**  
(polymyxin B-bacitracin-neomycin)

**Effective • Economical • Convenient • Recommendable**

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**WARNING:** Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neomycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as a failure to heal. During long-term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

**PRECAUTIONS:** As with other antibacterial preparations, prolonged use may result in overgrowth of non-susceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

**ADVERSE REACTIONS:** Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section).

Complete literature available on request from Professional Services Dept. PML.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709

# AN EXCEPTIONALLY FAVORABLE



## You can expect rapid relief of a broad range of symptoms

With Limbitrol, patients often improve within a week. Not only is insomnia relieved, but you will often see early relief of agitation, psychic and somatic anxiety, anorexia and feelings of guilt or worthlessness. This early response encourages patients to stay in therapy.

## You can minimize phenothiazine drawbacks

When you choose Limbitrol over a phenothiazine-containing product, you minimize the risk of tardive dyskinesia — now associated even with low dose, short-term phenothiazine therapy.<sup>1,2</sup> You also reduce the possibility of other extrapyramidal side effects, which occur in approximately 30% of patients receiving phenothiazines.<sup>3-5</sup> In contrast, the reported incidence of these disturbing reactions with Limbitrol or either of its compo-

nents alone is rare. (For a complete list of side effects reported with Limbitrol, please consult full disclosure.)

**References:** 1. Paulson GW. *NY State J Med* 79: 193-195, Feb 1979. 2. Hollister LE. Antipsychotic medications and the treatment of schizophrenia, chap. 9, in *Psychopharmacology: from Theory to Practice*, edited by Barchas JD et al. New York, Oxford University Press, 1977 pp 134, 145. 3. Domino EF. Antipsychotics phenothiazines, thioxanthenes, butyrophenones and rauwolfia alkaloids, chap. 25, in *Drill's Pharmacology in Medicine*, ed. 4, edited by DiPalma JR. New York, McGraw-Hill Book Company, 1971, p. 476. 4. Savner R. DiMascio A. Extrapyramidal syndromes and other neurological side effects of psychotropic drugs, in *Psychopharmacology: A Generation of Progress*, edited by Lipton MA, DiMascio A, Killam KF. New York, Raven Press, 1978, p. 1021. 5. Danlun PT, Stenson RL. *Dis Nerv Syst* 37: 629-635, Nov 1976.



ROCHE

# SAFETY/BENEFIT RATIO



What  
better reason  
to choose  
Limbitrol<sup>®</sup>  
for your  
patients with  
moderate depression and anxiety?

# Limbitrol<sup>®</sup> IV

**Tablets 5-12.5** each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline  
(as the hydrochloride salt)

**Tablets 10-25** each containing 10 mg chlordiazepoxide and 25 mg amitriptyline  
(as the hydrochloride salt)



## Efficacy without a phenothiazine

Please see summary of product information on following page.

## LIMBITROL® TABLETS Tranquilizer—Antidepressant

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Relief of moderate to severe depression associated with moderate to severe anxiety.

**Contraindications:** Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

**Warnings:** Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

**Usage in Pregnancy:** Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms including convulsions) similar to those of barbiturate withdrawal for chlordiazepoxide.

**Precautions:** Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated.

Sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy.

Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

**Adverse Reactions:** Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs.

**Cardiovascular:** Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke.

**Psychiatric:** Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.

**Neurologic:** Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.

**Anticholinergic:** Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

**Allergic:** Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.

**Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

**Gastrointestinal:** Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.

**Endocrine:** Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels.

**Other:** Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

**Overdosage:** Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. I.V. administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

**Dosage:** Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single h.s. dose may suffice for some patients. Lower dosages are recommended for the elderly.

Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased up to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

**How Supplied:** White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt) — baffles at 100 and 500. Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10, Prescription Paks of 50.

## How to initiate and maintain therapy

### Select dosage strength appropriate for each patient

- Limbitrol 5-12.5 is recommended to minimize drowsiness and for elderly patients.
- Limbitrol 10-25 may be indicated for patients who tolerate medication without undue side effects.

### Specify daily dosage based on symptom severity

- An initial dosage of three tablets is recommended.
- Dosage may be increased to six tablets or decreased to two tablets daily as necessary.
- Once a satisfactory response is obtained, patients should be continued on the smallest dose required to maintain the desired effect.

### Utilize dosage options to best accommodate individual patient needs

- T.I.D. or Q.I.D., familiar regimens most suited for patients who tolerate medication without undue drowsiness.
- Two tablets one hour before bedtime and one tablet midday may minimize daytime drowsiness and help relieve a common target symptom — insomnia.
- Entire dosage h.s. to take maximum advantage of the sedative effect.

# Your guide to patient management... when you decide medication is needed

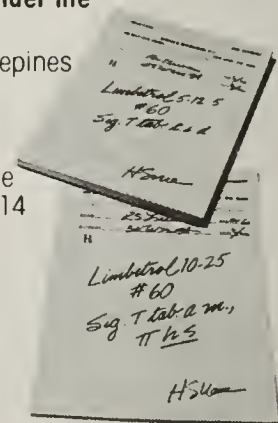
## How to make each patient an informed patient

1. Discuss with patients the probability that they will experience drowsiness, especially during the first week.
2. Reassure your patients that drowsiness is an indication that the medication is working and that it may help alleviate their insomnia.
3. Encourage patients to report if drowsiness becomes troublesome so that, if necessary, dosage schedule can be adjusted.
4. Caution patients about the combined effects with alcohol or other CNS depressants. Let them know that the additive effects may produce a harmful level of sedation and CNS depression.
5. Caution patients about activities requiring complete mental alertness, such as operating machinery or driving a car.
6. Warn pregnant patients and patients of childbearing age that the safety of Limbitrol in pregnancy has not yet been established.

Please see complete product disclosure for other pertinent information.

### Limbitrol should not be used under the following circumstances:

1. Hypersensitivity to benzodiazepines or tricyclic antidepressants.
2. Concomitantly with an MAO inhibitor. To replace an MAO inhibitor with Limbitrol, discontinue MAO inhibitor for a minimum of 14 days before cautiously initiating Limbitrol therapy.
3. During the acute recovery phase following myocardial infarction.



In moderate depression and anxiety

# Limbitrol®

Relief without a phenothiazine

ROCHE

ROCHE PRODUCTS INC.  
Manati, Puerto Rico 00701



## MONTHLY OR WEEKLY

### **Shrine Medics Meeting**

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

### **Office Psychiatry for the Primary Provider**

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

### **Counter Transference Group**

Weekly, Thurs. 8—10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

### **Monthly Meeting of Tucson Radiologists**

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of, Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

### **Pediatric Grand Rounds**

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

### **Review of Forensic Pathology**

#### **Current Case, Special Topics**

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.

## **ARIZONA HEART INSTITUTE**

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

### **Clinical Conference Cardiovascular Medicine**

Third Tues., 5:15 p.m., second floor classroom

## **ARIZONA STATE HOSPITAL**

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

### **A.S.H. Psychiatric Grand Rounds**

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm., Contact: Dr. Conger & Staff

### **Clinical-Pathological Conference**

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

### **Medical Grand Rounds**

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.

## **BARROW NEUROLOGICAL INSTITUTE**

### **Medical Education**

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### **Neurology Teaching Conference**

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf. Room.

### **Neurosurgical Morbidity Conference**

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### **Neuro-ophthalmology Conference**

Tuesdays, 7:30 a.m. in 8th floor neurology conference room.

### **Spinal Injury Conference**

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conf. Rm.—a multidisciplinary review of admission by neurosurgeons, orthopedists, and rehabilitation specialists

### **Neuro-ophthalmology Conference.**

Weekly, 7:30 a.m., 8th floor conference Rm.

### **Neuropathology of Gross Specimens Conference**

Thursday, 7:30-8:30 a.m. in the Morgue.

### **Neurology-Neurosurgical**

Fridays, 8-9 a.m., First Floor Conference Rm.

### **Neuropathology or Neuroradiology Conferences**

Friday, 9 a.m., Neuropathology in Neuropathology Conference Rm., Neuroradiology in First Floor Conference Rm.

### **Neurorehabilitation Conference**

Tuesdays, noon, 8th Floor Conference Rm.

### **Neurosurgical Journal Club**

Saturdays, 9-11 a.m. in Eighth Floor Conference Rm.

## **WALTER O. BOSWELL MEMORIAL HOSPITAL**

10401 Tunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED.D., Director of Education.

### **Medical Department Continuing Medical Education**

4th Wednesday, 12 Noon, C119. May, July, Sept. & Nov.

### **Tumor Board**

Last Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept. & Nov.

### **Surgical Department CME**

4th Friday, 7 A.M., Educ. Center Classrooms I & II. Contact: Brian Updegraff, M.D.

## **CAMELBACK HOSPITAL**

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr., M.D.

### **Clinical Conference**

3rd Tuesday, 8-9 a.m.

## **DESERT SAMARITAN HOSPITAL**

1400 South Dobson Road, Mesa, Arizona, Contact: L.A. Rosati, M.D. Approved for category 1 credit.

### **CME Programs**

Weekly Tuesday, 7 p.m., Cafeteria-West End.

### **Clinical Conference - Dept. of Medicine**

Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch, Grande Rm.

### **OB/GYN Medical Staff Conference**

Weekly, Monday, 12:30-1:30 p.m. Grande Rm.

### **Pediatric Case Conference**

2nd. Friday, 12:30 p.m., Grande 2

## **DOCTORS HOSPITAL**

1747 East Thomas Road, Phoenix, Arizona 86016 Contact: Medical Staff Secretary for additional information.

### **Physicians Continuing Education Program**

1st Thursday, 12:30 p.m., Classrooms.

## **EL DORADO HOSPITAL TUCSON (THMEP)**

1400 N. Wilmont Road, Tucson, AZ 85712. Contact: Eric G. Ramsay, M.D. Approved for category 1 credit.

### **Family Practice Department Meeting**

1st Monday, 12 Noon, Contact: R. Grossman, M.D.

## **FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA**

1215 N. Beaver Street, P.O. Box 1268, Flagstaff AZ 86002. Contact: B. C. Hirschberg, M.D., CME Program Clinical Conference. Approved for category 1 credit.

### **Quarterly General Medical Staff Meeting**

Monday, March 9. 7:30 P.M., Toffelson Rm.

### **Clinical Conferences**

Weekly, Tuesdays, 12:30 P.M., Tollefson Rm.

### **Mortality & Morbidity Conference**

Thursday, March 5, 12:30 P.M., Tollefson Rm.

## **GOOD SAMARITAN HOSPITAL**

1033 East McDowell Rd., Phoenix, AZ Contact: W. J. Howard, M.D. Approved for category 1 credit.

### **Anatomical Path. & Cytology**

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf Rm.

### **Gynecological Section Conference**

2nd Monday, 12:30-1:30 p.m., West Rm

### **Monday Noon Conference**

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### **Mortality/Morbidity, Surgery Comm.**

2nd Monday, 11:30-2:00 p.m., West Rm.

### **Obstetrical Section Conference**

1st Monday, 12:30-1:30 p.m., West Rm.

### **Pulmonary Disease Grand Rounds**

Weekly, 12:00-1:00 p.m., D-5 North

### **Family Practice Conference**

Weekly Tuesday, 12:00-1:00 p.m., Fam. Practice Conf. Rm.

### **Pediatric Grand Rounds**

3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul Bergeson, M.D.

### **Surgical Grand Rounds**

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### **Clinical Cancer Forum**

3rd Wednesday, 12:00-1:00 p.m., West Rm, Contact: John A. Bruner, M.D.



### **Combined Cardiovascular & Family Practice Conf.**

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5 North.

### **Dr. Fenger's Lecture**

Weekly, Wed., 12:30-1:30 p.m., R-2 Conf. Rm.

### **Learning Disabilities**

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

### **OB/GYN Dept. Review & Statistics**

Weekly, 12:30-3:00 p.m., OB/GYN Conf. Rm.

### **PM & R Grand Rounds**

2st. & 4rd. Wed., 12:00-1:00 p.m., R-2 Conf. Rm.

### **Gynecological Pathology**

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf. Rm.

### **GI Radiology Conference**

1st Thursday, 12:00-1:00 p.m., F151, Radiology Conf. Rm.

### **Phoenix Ultrasound Soc. Meeting.**

Medical Education Building, Contact: Dr. Ben Ora

### **Neurology Grand Rounds**

Weekly Thursday, 9:00-10:00 a.m., D-5 North.

### **Tumor Treatment Planning Conf.**

2nd & 4th Thursdays, 12:00-1:00 p.m., F151 Radiology

### **Joint Tumor Gyn Conference**

2nd Friday, 12:30-1:30 p.m., West Rm.

### **Kinesology**

Weekly Friday, 4:00-5:00 p.m., R-2 Conf Rm.

### **Medical Grand Rounds**

Weekly Friday, 8:00-9:00 a.m., West Rm.

### **Neuropathy Conference**

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

### **Psychiatry Grand Rounds**

Weekly Friday, 11:30-1:00 p.m., East Rm.

### **PM & R Journal Club**

Alt. Fridays, 12:00-1:00 p.m., R-2 Conf. Rm.

## **KINO COMMUNITY HOSPITAL,(THMEP)**

2800 E. Ajo Way, Tucson, AZ. 85713. Contact: Eric C. Ramsay, M.D., Approved for Category 1 credit.

### **Attending's Hour**

5th Monday, 12:30 p.m., Contact: J. Goldberger, M.D.

### **Infectious Disease Conference**

3rd Monday, 12:30 p.m., Contact: Barry Friedman

### **Ophthalmology Conference**

1st Monday, 12:30 p.m., Contact: Bruce Gillers, M.D.

### **Psychiatric Conference**

2nd & 4th Mondays, Contact: J. Santiago, M.D.

### **Surgical Conference**

Weekly Mondays, Contact: R. Fischer, M.D.

### **Cardiology Conference**

4th Tuesday, 12:30 p.m., Contact: B. Phibbs, M.D.

### **Clinical Pharmacology Conference**

5th Tuesday, 12:30 p.m., Contact: M. Katz, Clinical Pharm.

### **Neurology Conference**

1st & 3rd. Tuesday, 12:30 p.m., Contact: J. Laguna, M.D.

### **Radiology Conference**

2nd Tuesday, 12:30 p.m., Contact: M. Baker, M.D.

### **Medical Surgical Grand Rounds**

2nd Wed., 12:30 p.m., Contact: Chief Medical Resident

### **Medical Conference**

1st Wed, 12:30 p.m., Contact: Chief Medical Resident

### **Cardiology Conference**

1st Thursday, 12:30 p.m., Contact: B. Phibbs, M.D.

### **Endocrine Conference**

2nd Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

### **GI Conference**

4th Thursday, 12:30 p.m., Contact: C. Kanun, M.D.

### **Mortality & Morbidity Conference**

3rd. Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

### **OB/GYN Dept. Meeting**

2nd Thursday, 2 p.m., Contact J. Wurzel, M.D.

### **OB/GYN Pathology Conference**

Weekly, Thursday, except 2nd, Contact: J Wurzel, M.D.

### **OB/GYN Sonograph/X-ray Conference**

4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

### **Clinical Pathology**

5th Thursday, 12:30 p.m., Contact: J. Fleishman, M.D.

### **Renal Conference**

1st Friday, 12:30 p.m., Contact: T. Pence, M.D.

### **Hematology Conference**

2nd & 4th Friday, Contact: S. Ketchel, M.D.

### **Rheumatology Conference**

3rd Friday, 12:30 p.m., Contact: J. Goldberger, M.D.

### **Chest Conference**

5th Friday, 12:30 p.m., Contact: D. Engelsberg, M.D.

## **MARYVALE SAMARITAN HOSPITAL**

5102 W. Campbell Ave., Phoenix, AZ 85008

### **Continuing Medical Education Program**

Every other Wednesday, 7-8 a.m.

### **Clinical Conferences**

2nd & 4th Wednesday, 12-1 p.m., Medical Staff Lounge

## **MARICOPA COUNTY GENERAL HOSPITAL**

2601 E. Roosevelt, Phoenix, AZ 85008.

Contact: Leonard Tamsky, M.D.

### **Medicine Conference**

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

### **Chest Surgery Conference**

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

### **Hematology Conference**

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

### **OB/GYN Dept. Grand Rounds**

Weekly Tuesday, 12 Noon, Santa Cruz Room

### **Obstetrical Problem Conference**

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

### **Orthopedic Conference**

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

### **Pediatric Grand Rounds**

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

### **Urology Discharge Planning Conference**

Weekly, 11:30 a.m., Station 42

### **Hand Surgery Conference**

Weekly Wed, a.m., Santa Cruz Rm.

### **Neurosurgery Discharge Planning**

Weekly Wed., 1:30 p.m., Station 42.

### **OB/Neonatology Seminar**

Weekly, Wed. 7:30 a.m., Yavapai Rm.

### **Clinical Psychiatric Conference**

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

### **Surgery Conference**

Weekly Wed., 7-8 a.m., Surgical Dept.

### **Current Concepts in Medicine & Surgery**

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

### **Cardiology Conference**

Weekly Thurs., 2 p.m., Santa Cruz Rm.

### **OB/GYN Resident Conference**

Weekly Thurs., 12 p.m., Yavapai Rm.

### **GYN Endocrine Seminar**

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

### **OB/GYN Surgical Pathology Conf.**

Weekly Friday, 7:30 a.m., Yavapai Rm.

### **Orthopedic X-Ray Conference**

Weekly Friday, 7:30 a.m., Santa Cruz Rm.

## **PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER**

6025 N. 20th Ave., Phoenix, AZ 85015.

Contact: Leonard M. Lapenson, M.D., Approved for category 1 credit.

### **Clinical Conferences**

1st & 3rd Tuesdays, 12 noon, 5th floor auditorium.

### **CPC or Medical-Surgical Forum**

4th Tuesday, 12 noon, 5th floor auditorium.

## **PHOENIX INDIAN MEDICAL CENTER**

4212 North 16th St., Phoenix, AZ 85016.

Contact: Leland L. Fairbanks, M.D., Approved for category 1 credit.

### **Pediatric Grand Rounds**

1st Tuesday, 7:30-8:30 a.m., Contact: D. Randall, M.D.

### **Clinical Staff Teaching Conference, Rm. A.**

Wed. Weekly, 8:00 a.m.

### **Otolaryngology Grand Rounds**

4th Wednesday, 4-5 p.m., Conference Rm. A, Contact: N. Wendell Tood, M.D.

### **Family Practice/Emergency Room Teaching Conference**

Thursday Weekly, 7:30-8:30 p.m., Conf. Rm. A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

## **PHOENIX MEMORIAL HOSPITAL**

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:

George Scharf, M.D. Approved for category 1 credit.

### **Monthly Medical Education Seminar**

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

### **Clinical Conferences**

Weekly Tuesday, 12:30 p.m., Kiva Conference Rm.

### **Tumor Board Conference**

Weekly Friday, 12 p.m., Kiva Conf. Rm. Contact: H. Kimball, M.D.

## **SCOTTSDALE MEMORIAL HOSPITAL**

7300 East 4th Street, Scottsdale, AZ 85251.

Contact: W. S. Williams, M.D., Approved for category 1 credit.

### **Family Practice Conference**

1st Monday, 12:30 p.m., Doctors' Lounge

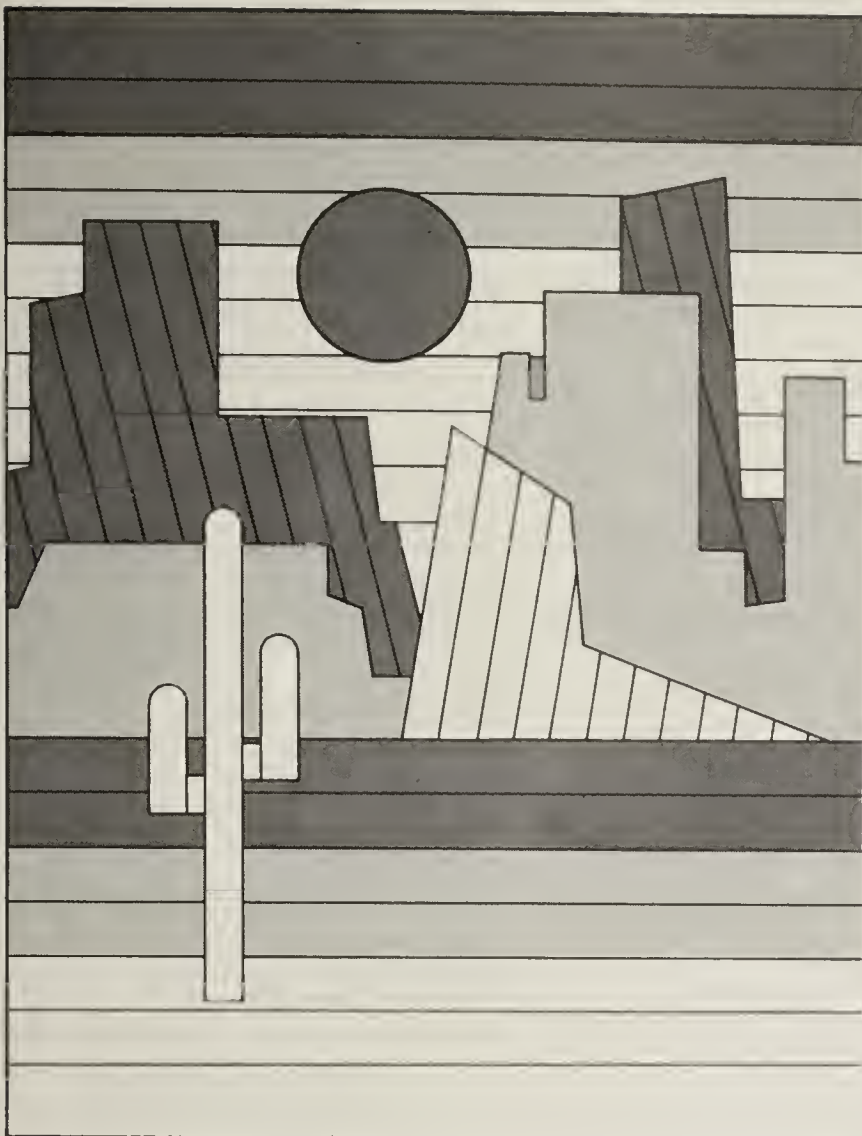
### **Morbidity & Mortality Conference**

2nd Monday, 12:30 p.m., Doctors' Lounge

### **Neurology & Neurosurgery Conference**

3rd Monday, 12:30 p.m., Doctors' Lounge





# Fifth Annual SOUTHWESTERN CARDIOVASCULAR SYMPOSIUM

June 11-13, 1981

at the world famous, 5-star  
Arizona Biltmore Hotel  
Phoenix, Arizona

A distinguished faculty has been selected  
to conduct the symposium sessions.  
Category 1 CME credit applied for.

sponsored by

**St. Luke's Hospital Medical Center**

R. Leighton Fisk, M.D.

Chairman

for additional information, write or call:

Christine Campbell, Seminar Coordinator  
St. Luke's Hospital Medical Center  
525 N. 18th Street, Phoenix, Arizona 85006  
(602) 258-7373 ext. 311

## Internal Medicine-Clinical Pathological Conference

4th Monday, 12:30 p.m., Doctors' Lounge

## Pulmonary Medicine Conference

1st Tuesday, 12:30 p.m., Doctors' Lounge

## Cardiology Conference

2nd Tuesday 12:30 p.m., Doctors' Lounge

## Surgery Departmental Meeting

3rd Tuesday, 12:15 p.m., Doctors' Lounge

## Thoracic & Vascular Surgery Conference

4th Tuesday, 12:30 p.m., Doctors' Lounge

## Cardiopulmonary Conference

4th Tuesday, 12:30 p.m., Doctors' Lounge

## OB/GYN Dept. Meeting & Conf.

2nd Wed., 12:30 p.m., Doctors' Lounge

## Trauma Conference

3rd Thurs, 12:30 p.m., Doctors' Lounge

## Tumor Conference

4th Thursday, 12:30 p.m., Doctors' Lounge

## Psychiatry & Behavioral Sciences Conference

1st Friday, 12:30 p.m., Doctors' Lounge

## GI Medical—Surgical-Radiological Conf.

2nd Friday, 12:30 p.m., Doctors' Lounge

## Urology-Oncology

Last Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85013.  
Contact: Joseph C. White, M.D.

## OB/GYN Section Conference

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor  
Conf. Rm.

## Genetics Conference

Weekly Monday, 12:30 p.m., Pediatric  
Department.

## Pediatric Rounds

Weekly Monday, Wed. & Friday, 10:30 a.m.,  
Pediatric Department.

## Pediatric Grand Rounds

4th Tuesday, 7:30-8:30 a.m., Contact: J. Kipp  
Charlton, M.D.

## ECG Conference

Weekly Tuesday, 12:30 p.m., Pediatric  
Department.

## Medical Grand Rounds

Weekly Wednesday, 8 a.m., 1st Floor Conf.  
Room.

## Visiting Professor Formal Presentation

Weekly Thursday, 8 a.m., PIMC

## Visiting Professor Informal Presentation

Weekly Thursday, 9:30 a.m., 1st floor Conf.  
Rm.

## Visiting Professor Formal Presentation

Weekly Thursday, 12:30 p.m., PIMC

## Nephrology Conference

Weekly Fridays, 12:30 p.m., Pediatric  
Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact:  
Eric G. Ramsay, M.D. Approved for Category  
1 credit.

## Family Practice Department Meeting

3rd Tuesday, 12 p.m., Contact: Wm.  
Moteforte.

## Ophthalmology Morbidity/Mortality Conf.

4th Tuesday, 12:15 p.m., Contact: Kim  
Sowards.

## Current Concepts In Medicine

Weekly, Tuesday, 12 p.m., Auditorium.

## Hematology-Oncology Conference

Last Wednesday, 12:15-1:15 p.m., Contact: S.  
Salmon, M.D.

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact:  
Gerald L. Hansbro, M.D.

## Cardiac Conference

Weekly Monday, 12:15 p.m., Auditorium

## Surgery Conference

1st Tuesday, 12:15 p.m., Auditorium

## Emergency Medicine Conference

1st Wednesday, 12:15 p.m., Auditorium

## Cardiovascular-Thoracic Record Review

3rd Wednesday, 12:15 p.m., Auditorium

## Psychiatry Conference

3rd Thursday, 7 a.m., Auditorium

## Combined Medical General Practice Conference

1st Friday, 12:15 p.m., Auditorium

## Toxicology Grand Rounds

2nd Friday, 7:30 a.m., Auditorium

## Ophthalmology Conference

1st Saturday, 8:30 a.m., Auditorium.



## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W. St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.

### Monthly Specialty Conference-Dept. of Surgery

1st Monday, 7:30 a.m., Century Rm. A.,  
Contact: Med. Staff Office.

### Grand Rounds: Medical Surgical, Family Practice, Pathology, Radiology

Weekly Thursday

### Emergency Medicine Lectures

Weekly Thursday, 8 a.m., Century Room A.

### Mental Health Update

1st Friday, 11:30-1:00 p.m., Century Rm. A.

### Cardiology Conference

Weekly Friday, 8:00-9:00 a.m., Century Rm.,  
Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.

Contact: Eric G. Ramsay, M.D. Approved for  
Category 1 credit.

### Cardiology Conference

Weekly Monday, except last, 12 Noon,  
Contact: J. Fernandez, M.D.

### Dermatology Conference

4th Monday, 5:00 p.m., Contact: R. Miller,  
M.D.

### Endocrinology Conference

Last Monday, 12 p.m., Contact M. Parker,  
M.D. **Perinatal Conference**

2nd Monday, 7:30 p.m., Contact: J. Lohman,  
M.D.

### Chest Conference

3rd Tuesday, 12 noon, Contact: William  
Nevin, M.D.

### Hematology Conference

4th Tuesday, 12 Noon, Contact: M. Boxer,  
M.D.

### Infectious Disease Conference

2nd Tuesday, 12 noon, Contact: B. Friedman,  
M.D.

### Nephrology Conference

1st Tuesday, 12 noon, Contact: Dr. Seltzer.

### Orthopedic Conference

1st Tuesday, 8:00 p.m., Contact: Jay Katz,  
M.D.

### Pediatric Grand Rounds

1st & 3rd Tuesday, 12:30 p.m., Contact: Dr.  
Lightner.

### Cardiac Cath. Conference

2nd & 4th Wednesday, 5:15 p.m., Contact: L.  
Buckels, M.D.

### Clinical Pathology Conference

Last Wednesday, 8:00 a.m., Contact: Dr.  
Fuchs.

### Family Practice Meeting

2nd Wednesday, 12:30 p.m., Jan., April, July,  
& Oct. Contact: C. Mangelsdorf, M.D.

### Medical Conference

Weekly Wednesday, 8:00 a.m., Contact: M.  
Fuchs, M.D.

### Neurology-Neurosurgery Conference

Weekly Wednesday, 12 noon, Contact: H. W.  
Buschsbaum, M.D.

### Dermatology Conference

1st Thursday, 12 noon, Contact: R. Friedman,  
M.D.

### Neuroradiology Conference

Weekly Thursday, 5:00 p.m., Contact: N.  
Komar, M.D.

### Tumor Conference

Weekly Thursday, 12 noon, Contact: Dr.  
Hastings.

### G—I Conference

Weekly Friday, 12 noon, Contact: C. Krone,  
M.D.

### Interhospital Nuclear Medicine Conference

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts,  
M.D.

### OBGYN Conference

1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

### OBGYN Pathology Conference

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

### Surgical Department Conference

Weekly Saturday, 7:30 a.m., Contact: Dr.  
Hastings, TMC.

### Surgical Grand Rounds

Weekly Saturday, 9:00 a.m., UAHSC-Room  
5403, Contact: Dr. Norton.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix,  
AZ 85012. Contact: Alfred Heibrunn, M.D.  
Approved for Category 1 credit.

### GI X-Ray Clinical Correlation Conf.

1st & 3rd Monday, 1 p.m., Rm. C435, Contact:  
Drs. Sanowski, & Jarczyk.

### Medical/Surgical GI Conference

1st & 3rd Mondays, 3 p.m., Rm. 3134,  
Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext  
493.

### GI Pathology Conf.

2nd. & 4th Monday, 1 p.m., Path Conf. Rm.,  
Contact: Dr. Sanowski..

### Vascular Conference

2nd Monday, 3 p.m., Room 3134, Dr. Cintora,  
Ext 419

### Surgery/Pathology Conference & Tissue Review

1st & 3rd Tuesday, 4 p.m., Room 2128,  
Contact: Dr. Landard

### GI Grand Rounds

Weekly Tuesday, 1 p.m., Contact: Drs.  
Sanowski, Kozarek & Partyka

### Cancer Symposium

Weekly Wed., 1 p.m., T-5, Contact: Dr. Byrne,  
Ext. 426.

### Housestaff Pulmonary Disease Teaching Conf.

Weekly Wed., 3-4 p.m., Contact: Dr.  
Rohwedder, Ext. 388.

### Medical Surgical Chest Conference

1st & 3rd Thursday, Contact: Dr. Rohwedder  
or Dr. Gill.

### Cardiology Conference

2nd Thursday, 1 p.m., Rm. T-5.

### Medical Service Grand Rounds

Weekly Friday, 11 a.m., Contact: Dr. Zeller

### GI Resident Conference

Weekly Friday, 1:00 p.m., D446, Contact: Drs.  
Grobe, Phelps, Sanowski and Kozarek.

### Surgical Journal Review & Videotape Session

Weekly 1 p.m., Room 3134.

## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed  
below. Approved for category 1 credit.

### Medical Lectures

1st & 2nd Thursday & Weekly, Fridays, 1:30  
p.m., Bldg. 28. Contact: J. W. Fitzharris, D.O.

### GI Rounds

Third Thursday, 10 a.m.-2:30 P.M., Contact:  
J. W. Fitzharris, D.O.

### Grand Rounds

Weekly Thursdays, 11 a.m., Bldg. 107.  
Contact: J. W. Fitzharris, D.O.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723.  
Contacts listed below. Approved for category  
1 credit.

### Medical Surgical Chest Conference

Weekly Tuesday, 2 p.m., Contact: Dr. Young

### Medical Grand Rounds

Weekly Wed., 12-1:00 p.m., VA Hospital Staff  
Conf. Rm. & (AHSC), Contact: Jay Smith,  
M.D.

### Surgical Grand Rounds

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

### Endocrinology Seminar

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm.  
N318, Contact: Dept. of Internal Medicine.

### Grand Rounds

Weekly, Thursday, 11 a.m., Bldg. 107,  
Contact: J. Fitzharris, D.O.

### Vascular Radiology, Interesting Case Conf.

Weekly Thursday, 12:00 noon.

### Neurology Grand Rounds

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact:  
Alan Winfield, M.D. Approved for category 1  
credit.

### Radiology Conference

1st Tuesday, 7:00 a.m.

### Operation Outreach

2nd Tuesday, 6:30 p.m.

### Pathology Conference

4th Tuesday, 7:00 a.m.

### Operation Outreach

2nd Wednesday, 7:00 a.m.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson,  
AZ 85724. Robert M. Anderson, M.D., Dir. of  
CME. Contact: See below. Approved for  
category 1 credit.

### Anesthesiology Board Review Conference

2nd & 4th Monday, 4-5 p.m., AHSC Dining  
Rm. C&D, Contacts: Dr. Vaughn & Krylic.

### Anesthesiology Basic/Clinical Sciences Lectures

Weekly Thursday, 4-5 p.m., Room 5403

### Anesthesiology Case Discussion

Weekly Wed., 7:00 a.m., AHSC, Dining Rm.  
C&D.

### Anesthesiology Resident Presentation

1st Monday, 4-5 p.m., AHSC Dining Room,  
C&D, Contacts: Drs. Otto & Zehngut.



**Cancer Center Tumor Board Seminar**  
3rd Tuesday, Monthly, 12-1 p.m., HSC Auditorium, Contact: Cancer Center

**Cardiac Catheterization Conference**  
Weekly Friday, 4:00 p.m., Contact: Dr. Temkin.

**Cardiology Research Conference**  
Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

**Tucson Cardiovascular Society**  
1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

**Cerebrovascular Disease Conference**  
Weekly Monday, 5:00-6:00 p.m., AHSC, Rm. 5505, Contact: Dr. W. Moore

**Clinical Immunology, Allergy & Rheumatology Rounds**  
Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

**Cerebrovascular Disease Conference**  
Mondays, 5-6 p.m., Weekly, Rm. 5505. Contact: Wesly Moore, M.D., Depts. of Surgery, Neurology & Radiology.

**Dermatology Rounds**  
Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

**Endocrinology Seminar**  
Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

**GI Pathology Conference**  
4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

**GI Radiology Conference**  
2nd. & 4th Mondays, 7:30 a.m., AHSC, Contact: Dr. T. Hunter

**Head & Neck Tumor Management Conference**  
Weekly Wed., 4:00 p.m., Contact: Dr. Manning

**Hematology-Oncology Clinical Conference**  
1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact: S. Salmon, M.D., Dept. of Internal Medicine.

**Medical Grand Rounds**  
Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

**Morbidity/Mortality In E.M.**  
2nd Tuesday, 9:00 a.m., AHSC, Contacts: Drs. Hughes & Alcorn

**Neuromuscular Disease Conference**  
Weekly Friday, 11:30 a.m., Contact: Dr. Stern

**Neuropathology Review Conference**  
Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

**Neuroradiology Conference**  
Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

**Neuromuscular Journal Conference**  
2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

**Neuropathology Case Review**  
Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

**Neurosciences Seminar**  
Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

**Nuclear Medicine**  
Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

**Ophthalmology Grand Rounds**  
Weekly Friday, 8 a.m., AHSC, Contact: Dr. H. Cross

**Ophthalmology Retina & Fluoro. Conference**  
Weekly Thursday, 5:00 p.m., AHSC Contact: Dr. H. Cross

**Orthopedic Rounds**  
Saturday, 8:00 a.m., Contact: Dr. Peltier.

**Pain Conference**  
3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

**Pathology Seminar**  
Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

**Tucson Pathologist Conference**  
1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

**Pediatric Grand Rounds**  
2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

**Pediatric Problem Patient Conference**  
Weekly Wed., 8:00 a.m., Contact Dr. Walson

**Pediatric Research Forum**  
Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

**Pediatric Specialty Conference**  
Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

**Psychiatric Grand Rounds**  
Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

**Psychiatric Monthly Case Conference**  
2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

**Pulmonary Rounds**  
Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

**Chest Radiology**  
Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

**Neuroradiology Teaching Conference**  
Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

**Radiation Oncology Planning Conference**  
Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

**Radiology Interesting Case Conference**  
Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

**Gastrointestinal Radiology**  
Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

**Radiology-Rheumatology Conference**  
Weekly Thursday, 7:45 a.m., UAHSC, Library Rm. 1535C.

**Uroradiology (Genitourinary Radiology)**  
2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

**Renal Pathology Conference**  
1st & 3rd Thurs., 11:30 a.m., Contact: Dr. Nagle.

**Residents Noon Conference**  
Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact: Dr. A. Greensher.

**Resident's Conference**  
Wednesday, weekly 5-6 p.m., Diag. Radiology Conf. Rm.

**Surgical Morbidity & Mortality Conference**  
Weekly Wed., 8:00 a.m., Contact: Dr. Wangenstein.

**Joint Thyroid Conference**  
1st & 3rd Wed., Contact: S. C. Werner, M.D.

**Trauma Conference**  
Every Thursday, 4-5 p.m. UAHSC, Rm. 5505.

**Ward Grand Rounds - Trauma**  
Weekly Tuesday, 8:00 a.m., Contact: Dr. M. Silverstein.

**Toxicology Conference**  
Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes Section.

**Tucson Ultrasonography Group**  
Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

**General Urology Conference**  
Weekly Tuesday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach.

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully bound books. Choose from 30 different colors of durable Library Buckram

**\$13.50 per volume, (name imprint.75)**

**\$15.00 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

**Free** local pickup and delivery on 10 volumes or more

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338



CREATIVE MOMENTS '81

ARTS & CRAFTS SHOW APPLICATION  
INSTRUCTIONS:

- 1. Complete form and mail, *BY MAY 11, 1981*, to:  
Mrs. Karen Epstein  
5231 Via Buena Vista  
Paradise Valley, AZ 85253
- 2. Entries are limited to:  
Adults ..... Three per person.  
Youth (*13 years through 17 years*) ..... Two per person.  
Child (*12 years and under*) ..... Two per person.
- 3. Deliver entries for display to:  
The Pointe Resort Grande Ballroom, 7677 N. 16th Street, Phoenix, starting at 12 Noon on Thursday May 21, 1981.  
Items will be on display Friday, Saturday and Sunday until noon, May 24, 1981.
- 4. Entries **MUST** be picked up between 12 Noon and 1 P.M. on Sunday, May 24, 1981.

Registration Form:

I would like the following items in the **Creative Moments '81** to be held May 22-24, 1981 at The Pointe Resort, 7677 North 16th Street, Phoenix, Arizona.

| Describe In Detail | Exhibited<br>Professionally<br>yes or no | Kit<br>yes or no | Own Design<br>yes or no | Check One |       |       |
|--------------------|------------------------------------------|------------------|-------------------------|-----------|-------|-------|
|                    |                                          |                  |                         | Child     | Youth | Adult |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |

(One Form Per Person Please)

Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
Address: \_\_\_\_\_

For Further Details Contact: Mrs. Karen Epstein  
5231 Via Buena Vista  
Paradise Valley, Arizona 85253  
Phone: 948-6777



*"Joint Life is the insurance of the '70's"*

# **Doctor, HBA Life's JOINT LIFE INSURANCE insures two people with only one policy, one low premium**

*with these advantages:*

**BUSINESS INSURANCE:** Two doctors, partners or associates in a professional corporation, will find this plan a low-cost way to provide funds if one of the two dies. It also may be used by husband and wife or father and son to provide funds to pay off special debts or for any of the other purposes for which life insurance may be used.

**LOWER INSURANCE AGE:** Often, one insured is somewhat younger than the other. The joint equal age can take years off the age of the older insured. The policy provides for the payment of the face amount upon the death of the first of the two insureds to die.

**GUARANTEES SURVIVOR INSURABILITY:** The surviving insured, within 90 days and prior to age 70, is guaranteed the right to purchase life insurance. If the surviving insured doesn't exercise this right and dies during this 90-day period, the conversion would automatically be made by the Company and the face amount, less the conversion premium, would be paid to his beneficiary.

**DOUBLE FOR SIMULTANEOUS DEATH:** If both insureds should die simultaneously, the sum insured upon their deaths would be paid to their beneficiaries.

**CONVERTIBLE TO SINGLE LIFE:** The Joint Life Insurance may also be converted to single insurance prior to the older insured's 60th birthday. The amount converted can be all on one life or the other or divided between the two as long as each does not take less than \$1,000 of life insurance.

An HBA Life Agent would be glad to discuss it further at your convenience.



**THE HBA LIFE**  
**INSURANCE COMPANY**

1337 N FIRST ST. • PHOENIX • 258-4885

***A Local Company Serving the West Since 1944***

# GET TO THE POINTE



**Memorial Day Weekend - 1981!** An educational and recreational experience you can't afford to miss. ArMA's business meetings will be held on Wednesday and Thursday, with the balance of the convention devoted to the presentation of a top-quality educational program. Convention registrants will have the opportunity to choose from a comprehensive program of scientific presentations, three "special events" dealing with medical economics and national preparedness, an ACLS provider course, and more than 50 scientific and commercial exhibits.

Educational activities are scheduled so that you can enjoy one or more athletic events: The Annual Golf Tournament at noon and the Annual Tennis Tournament at 6 P.M. on Thursday, May 21 and a Six Mile Fun Run on Friday, May 22. And be sure to reserve Friday and Saturday nights for two social evenings that are expected to be the best ever.

The Pointe Resort in Phoenix is the perfect background for this remarkable meeting. The Pointe features many innovative facilities and recreational activities for all members of the family at LOW, OFF-SEASON RATES (only \$46 for two).

Remember — in just four days during ArMA's Annual Meeting, you can be:

**Informed**

**Entertained**

**Comfortable**

**Active**

**Where you want to Be**

Watch for the entire convention program in the March issue of *Arizona Medicine*.

## and get it all together . . .



# MAKE YOUR MARK AND BE COUNTED...

If you haven't already, now is the time to complete the 1981 Census of Physicians' Professional Activities.

Doing so will assure:

- that your official record is updated
- that you are accurately represented in the 28th Edition of the *American Medical Directory*
- that you continue to receive the educational and scientific materials relevant to your professional interests

Call or write if you have not received a census form

Division of Survey & Data Resources

American Medical Association

535 North Dearborn Street

Chicago, Illinois 60610

312-751-6435



**1. How many hours per week do you spend on DIRECT CARE OF PATIENTS?**

**2. How many hours per week do you spend on INDIRECT CARE OF PATIENTS?**

**3. How many hours per week do you spend on ADMINISTRATIVE ACTIVITIES as a Salaries Staff Member or Executive of an Organization?**

**4. How many hours per week do you spend on MEDICAL TEACHING?**

**5. How many hours per week do you spend on MEDICAL RESEARCH?**

**6. How many hours per week do you spend on other medical activities (not listed above) involving DIRECT CARE OF PATIENTS?**

**7. How many hours per week do you spend on OTHER MEDICAL ACTIVITIES (not listed above) NOT involving care of patients?**

**About how many hours per week do you spend in ALL PROFESSIONAL ACTIVITIES? For Residents, this is the total of questions 1, 6 and 7. For all other physicians this is the total of questions 2 - 7.**

**the TOTAL in question 8 above is 20 hours or less**

**9. Please answer question 9**

**you:**

**Retired** 2 ☐ **Semi-retired** 3 ☐ **Permanently Disabled** 4 ☐ **Temporarily not in practice** 5 ☐ **of active for other reasons (please describe)** 6 ☐

**10. OTHER ORGANIZATION - N**  
(all types of insurance carriers, pharmacies, corporations, voluntary organizations, societies, associations, grants, etc.)

**Total of Section I equivalent to total of Section II, and total of Section III, respectively**

**7. City or County Government**

**8. State Government**

**9. U.S. Government**  
Indicate Federal Agency  
1 ☐ Army 2 ☐ Navy 3 ☐ Air Force 4 ☐  
5 ☐ Veterans Administration 6 ☐ Other

**10. OTHER ORGANIZATION - N**  
(all types of insurance carriers, pharmacies, corporations, voluntary organizations, societies, associations, grants, etc.)



# COMPUTED TOMOGRAPHY, LTD.

## Cranial and Body CT Scanning

ARIZONA MEDICAL PLAZA  
1728 WEST GLENDALE AVENUE, SUITE LL3  
PHOENIX, ARIZONA  
PHONE 995-1557

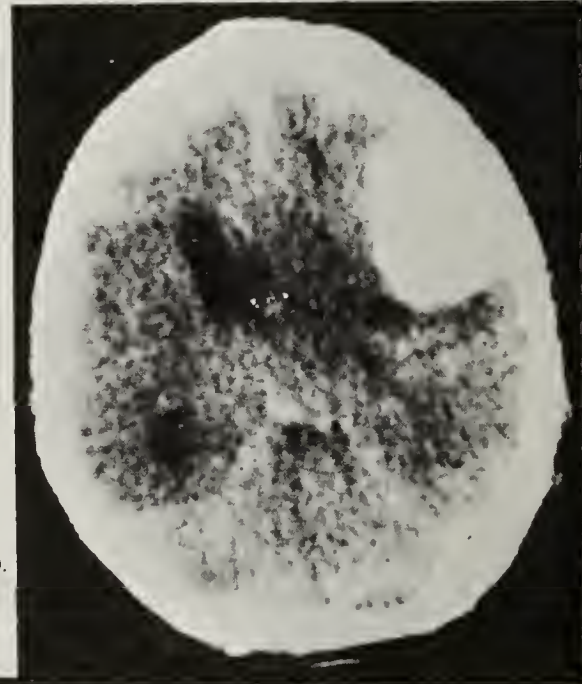
**DELTA 50**

**DELTA 2020**  
**2 Sec. Scanner**

PLAZA DEL RIO MEDICAL CENTER  
9419 WEST THUNDERBIRD ROAD  
SUN CITY, ARIZONA  
PHONE 972-1127



WALTER J. BROWN, M.D.  
JOHN B. FOX, M.D.  
ALFRED J. DELLA ROCCA, M.D.  
LELAND E. SARGENT, M.D.  
DONALD A. TOBIAS, M.D.  
ROBERT S. WALDMAN, M.D.



Until now  
it was paradise for  
everything but business.



We've got what's been missing in Greater Paradise Valley...one of the first real professional buildings of any size in the area. Paradise Corporate Plaza is 60,000 square feet of lease space with a fourth of the total reserved for medical practices. Imagine nearly two blocks of prime frontage where Shea Boulevard meets Tatum...a high visibility right on Shea that no other office complex can offer.

Life at the office in Paradise Corporate Plaza meets every expectation. Outstanding architecture. Courtyards and fountains. Balconies and terraces. Thoughtfully designed interiors and conveniences.

Doing business where everyone wants to live is a pleasure. Paradise Valley Mall a few blocks north. More great restaurants and shopping every day. Golf courses and country clubs. Fast access to three airports. Everything seems closer from the corner of Paradise's two major trafficways.

For leasing information, write or call: James Pullaro & Company, 10269 N. Scottsdale Road, Scottsdale, Arizona 85253. (602) 991-8400.

**Paradise Corporate Plaza**



**MARTENS**

"Created by Martens Development Corporation...over a million square feet of commercial development in the past five years."



# Partnership with Arizona medicine for one quarter century!



For 25 years, Camelback Hospitals have maintained a working partnership with Arizona's medical profession in offering eminent psychiatric facilities for the care and treatment of emotionally and mentally ill patients.

## **Services doctors understand & appreciate**

As non-profit community facilities, Camelback Hospitals offer psychiatric services unavailable at most institutions:

- Totally separate programs for adults, young adults, adolescents and older adults.
- Intensive diagnostic and short-term treatment for all age groups.
- Progressive approaches to the treatment of alcohol and drug abuse.
- A special Activity Center with art, music, dance, recreation, occupational therapy and personal effectiveness programs.
- Individual, group and family therapy with special psychodrama sessions.
- Day Treatment Program.

## **A pleasant, different kind of atmosphere**

Patients enjoy bright, sunny buildings, designed for psychiatric treatment and rehabilitation. Special emphasis is placed on providing each patient with a more complete understanding of himself, so that he can participate in his therapy with insight and intelligence.



 **Camelback Hospitals**

Scottsdale Camelback Hospital  
7575 E. Earll Drive  
Scottsdale, AZ 85251  
(602) 941-1108

Phoenix Camelback Hospital  
5055 N. 34th Street  
Phoenix, AZ 85018  
(602) 955-6200



# computed tomography of the head



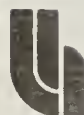
## CNS

computed neurological scanning center

Baptist Medical Center • Out Patient Facility  
6036 North 19th Avenue, Suite 207 • Phoenix, Arizona 85015 (602) 242-5859  
Alan Yudell, MD—Ralph B. Lilly, MD—Barry A. Hendin, MD



# NEW TOLL-FREE 1-800-352-7981



John C. Lincoln Hospital

## TRAUMA CENTER Physician Referral Line

A 24-hour direct line to the Trauma Center physician!  
9211 North Second Street — Phoenix, AZ 85020



*"We're getting good billing  
because it costs a lot!"*

Gullible  
PC



Sure...and the way to select a good attorney is to find the one who charges the most. Let's get serious.

Relating performance to cost is not always smart. Right now, we can't name one office who can do a better job of billing or do it for less than us. With well conceived computer programs and billing procedures, there are ways to keep both losses and costs to an absolute minimum. The secret is in our background and experience.



**The Anesthesia Office, Inc.**

Main Office: Post Office Box 39429, Phoenix, Arizona 85069 (602) 242-1908

# **SAVE \$650 ON MY OFFICE SUPPLIES??**

Arizona physicians are saving as much as 28% on purchases of professional supplies and equipment through the Western Physicians Purchasing Association, a non-profit organization partially owned by your state medical association.

The average WPPA member from Arizona saved \$458 in 1979 — more than 9 times the 1980 dues of \$50.00 per doctor.

Professional items, office supplies, professional equipment, office furniture . . . more than 16,000 items available.

## **HOW MUCH MONEY HAVE YOU LOST BECAUSE YOU HAVEN'T BEEN A WPPA MEMBER?**

For additional information, call WPPA at (801) 479-1767

**It's Easy . . .**

**Just Join The WPPA, It Will More Than Save you State Medical Association Dues—**

## **WESTERN PHYSICIAN PURCHASING ASSOCIATION**

**Another membership benefit of the  
Arizona Medical Association**



# ...and neither are you!



**You're Not  
Alone  
Anymore**

Now, the family doctor can get professional assistance for helping clients recognize and do something about alcoholism.

Concerned persons close to the alcoholic are learning about St. Luke's new, exclusive, Family Intervention Program by way of dramatic television announcements placed around high-rated programs at critical times of the day.

Families and friends are being urged to call this number for help: 258-7373, Ext. 506.

You are invited to use the same number for referral, assistance or information concerning treatment of the disease, alcoholism.



**St. Luke's Hospital  
Medical Center**

Write: Victoria Sterling  
Family Intervention Program  
525 N. 18th St., Phoenix, AZ. 85006

ANNOUNCEMENTS • LETTERHEADS • ENVELOPES • OFFICE FORMS • PATIENT HISTORY FORMS • BUSINESS CARDS •



**THE ARIZONA MEDICAL ASSOCIATION**

*Offers*

**SUBSTANTIAL SAVINGS TO MEMBERS**

*On*

**PRINTING • ADDRESSING • MAILING  
SERVICES**

*Provided In Our Shop*

Call Or Write "Press" Preston  
Printing Department  
810 West Bethany Home Road  
Phoenix, Arizona 85013

*Tucson Members:*  
Ask Tucson Operator for  
Enterprise 265

*Phoenix Members:*  
Telephone 246-8901

*All Other Members:*  
Call Collect 246-8901

RX FORMS • PATIENT INFORMATION FORMS • PATIENT HISTORY FORMS

BUSINESS CARDS • RX FORMS • ANNOUNCEMENTS • LETTERHEADS • ENVELOPES • OFFICE FORMS

# Classified

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director

For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"



## Medical Transcription

Serving the medical  
profession for 20 years

## MULLEN MEDICAL SERVICE, INC.

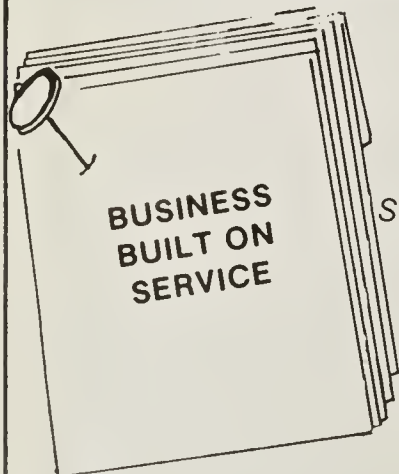
4502 North 36th Street  
Phoenix, Arizona 85018.  
Telephone (602) 955-0763

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

## GUARANTEED SAVINGS!!



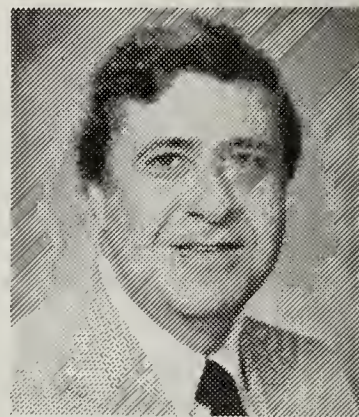
Billing and mailing  
same — day services

*Statements made from your  
ledgers at your office*

**House of Mailings**  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708

**L. Louis Jacob**  
General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions



**We Want You With Us**



## Occidental Life

A Transamerica Company

Occidental Life Insurance Company of California

## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### MEDICAL PRACTICE AVAILABLE

M. D. retiring after 35 years general practice in one central location. Near all big hospitals and laboratories. Instant income. Will work with new doctor during transition. Financing available to qualified buyer. Sale includes real estate, medical practice, all furnishings and equipment and has two rentals. Call or write: Catalina Realty Co., 4317 East McDowell Road, Phoenix, Arizona 85008. (602) 947-3612.

### LOCUM TENENS - COMPHEALTH

Our medical group can place a well-qualified physician in your practice during your absence. For more information call or write: Comprehensive Health Systems, Inc., 175 West Second South, Salt Lake City, UT 84101. (801) 532-1200.

### PSYCHIATRIST

Willing to do consultation work in your office — also willing to do locum tenens in psychiatry. Please telephone (602) 967-2358.



## **CLINICAL LABORATORY MANAGEMENT SERVICE**

A full service physician's office requires a clinical laboratory that is capable of producing results on a stat basis. Do you presently have a laboratory? If not why not? If you have a laboratory; would you like to perform tests that you thought were impossible to perform! Now you will be able to get help in starting a laboratory, expanding, upgrading or managing. For further information please call (602) 256-4226 or write. Management Service, P.O. Box 22005, Phoenix, Arizona 85028.

## **DIRECTOR OF MEDICAL STAFF**

St. Joseph's Hospital and Medical Center in Phoenix, Arizona, 591-bed teaching hospital with a 1,000 member medical staff, is seeking a full-time Director of the Medical Staff. Individual will be responsible for assisting the medical staff committees with quality assurance program, JCAH standards, and medico-administrative functions. Individual will be under the general direction of the medical staff president and the medical staff executive committee. All correspondence confidential. For further information, send inquiries and curriculum vitae to: Medical Staff Office, Theodore Mobley, M.D., Medical Staff President, St. Joseph's Hospital and Medical Center, P.O. Box 2071, Phoenix, Arizona 85001.

## **PROFESSIONAL EDITOR**

English Ph.D., will help prepare journal — or book-length non-fiction manuscripts for publication. Advice on revisions, rewriting, intelligent editorial commentary. Also will edit proposals. Vicky Hay: (602) 965-3521 or 253-1698.

## **REAL ESTATE**

### **ALL NEW DELUXE SUITES**

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### **SKI SUNRISE**

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

## **SCOTTSDALE INVESTMENT**

9 3/4% assumable existing financing with low CTM or OWC; new condo; 24-hours guard gate security; 3 pools; tennis court; 2 bedroom/den; many upgrades. For details, call (602) 959-8492. Owner/Agent.

## **MEDICAL SPACE**

Will sub-lease attractive suite in Arizona Medical Plaza, 1728 West Glendale Ave., approximately 1000 sq. ft., many extras. Contact: W. A. Warner, M.D. (602) 995-4577.

## **MEMORIAL MEDICAL OFFICE BUILDING**

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

## **BEAUTIFUL CONDOMINIUM**

**Condominios Pilar  
San Carlos Bay, Mexico  
For Rent**

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

## **FOR LEASE**

Office Space From 600 sq. ft., to 3,000 sq. ft. in Tempe. Tempe Village Square SW corner of Southern & Priest. Call: (602) 966-8957.

## **SCOTTSDALE HOME FOR SALE BY PHYSICIAN OWNER**

Fine close in location (vicinity Fashion Square). A well-built family home five minutes for Scottsdale Memorial Hospital. Approximately 2530 sq. ft.; 4 bedrooms plus study; 3 baths; kitchen with top-of-line appliances; heated s/c pool; irrigated lawn; 43 ft. covered patio. Possession April 15. NO AGENTS. \$145,000. For more information call (602) 956-4090 or 941-2543.

## **MEDICAL OFFICE FOR LEASE**

Completed suite (with cabinetry, telephones, wall and floor covering), approx. 1300 sq. ft. Brand new building, located midway between Good Samaritan Hospital and St. Joseph's Hospital. Please call: William Weese, M.D., (602) 265-0000.

## **OFFICE SPACE IN SCOTTSDALE**

200 to 600 sq. ft. to be sub-let. Presently muscle toning salon. Space already subdivided into 8 ft. by 6 ft. cubicles; conference and reception rooms. Beautiful facilities. (602) 941-1872.

## **SCOTTSDALE, ARIZONA**

Two Scottsdale, Arizona, internists wish to share office space and expenses. Internal Medicine sub-specialty desired. New office space completely furnished with modern diagnostic equipment including x-ray and treadmill. Call (602) 991-9120 or reply to Box 126, c/o Arizona Medicine, 810 W. Bethany Home Road, Phoenix, Arizona 85013.

## **PINETOP MOUNTAIN CABIN - FOR RENT**

White Mountain summer home. Ideal now for Winter activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

## **MESA OFFICE SPACE FOR SUB-LEASE**

1450 South Dobson Road. On grounds of Desert Samaritan Hospital. 1720 sq. ft. Available after July 1, 1980. Suitable for Family Practice. Internal Medicine or other specialties. Medical equipment may be available (either for lease or sale.) One room designed for x-ray or regular exam room. Contact: (602) 831-8297. 2738 S. Pecan, Mesa 85202.

## **FLAGSTAFF OFFICE AVAILABLE FOR RENT**

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

## **ATTENTION PROFESSIONALS!**

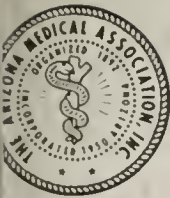
Looking for that special something for your office or waiting room? Does the atmosphere seem dull and lifeless? AQUATIC PROFESSIONALS has the answer. We can now bring life to your office through the mysteries of an underwater world. An aquarium will fascinate those who visit you. Complete sales and maintenance programs available. Call: (602) 867-2444 for appointment.

## INDEX TO ADVERTISERS

|                                             |                |
|---------------------------------------------|----------------|
| Advanced Computer Techniques                |                |
| Act-Omega .....                             | 78             |
| AirEvac .....                               | 84             |
| Allied Envelope & Printing, Inc. ....       | 92             |
| The Anesthesia Office, Inc. ....            | 147            |
| Arizona Laminating .....                    | 82             |
| Boots Pharmaceuticals                       |                |
| F-E-P, Twin K, SU-TON .....                 | 85, 86, 87, 88 |
| Bristol Laboratories                        |                |
| Tegopen .....                               | 80, 81, 82     |
| Burroughs Wellcome                          |                |
| Zyloprim .....                              | 79             |
| Neosporin Topicals .....                    | 131            |
| Camelback Hospital .....                    | 145            |
| Classified Ads .....                        | 150, 151       |
| Computed Neurological Scanning Center ..... | 146            |
| Computed Tomography .....                   | 144            |
| Doctors Central Directory .....             | 150            |
| Eli Lilly & Co.                             |                |
| Ceclor .....                                | 83             |
| HBA Life Insurance .....                    | 141            |
| Health Agencies of the West .....           | 89             |

|                                            |                           |
|--------------------------------------------|---------------------------|
| House of Mailings .....                    | 150                       |
| Louis Jacobs .....                         | 150                       |
| John C. Lincoln Hospital .....             | 146                       |
| Martens Development .....                  | 144                       |
| Medical Bookstore .....                    | 82                        |
| Merrell-National                           |                           |
| Bentyl .....                               | 90, 91, 92                |
| Mica Insurance Co. ....                    | 93                        |
| Mullen Medical Service .....               | 150                       |
| Old Colony Trust .....                     | 77                        |
| Roche Labs                                 |                           |
| Valium .....                               | Second Cover, 77          |
| Librax .....                               | 105                       |
| Limbital .....                             | 132, 133, 134             |
| Bactrim .....                              | Third Cover, Fourth Cover |
| Roswell Bookbinding .....                  | 139                       |
| Danny T. Sievert                           |                           |
| Insurance .....                            | 876                       |
| St. Luke's Hospital & Medical Center ..... | 137, 149                  |
| UpJohn Company                             |                           |
| Health Care Services .....                 | 106                       |
| Valley Prosthetics .....                   | 92                        |
| Western Physician                          |                           |
| Purchasing Assoc. ....                     | 148                       |





# ARIZONA MEDICINE

90th ArMA Annual Meeting  
51st ArMA Auxillary Convention  
Program Issue

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

SSN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

## SEMINARS IN CONTINUING EDUCATION

### CARDIOLOGY

- Surgical Management of Post-Infarction  
Aneurysm of the Cardiac  
Ventricle .....176  
*Cecil C. Vaughn, M.D., et al*

### GASTROENTEROLOGY & LIVER DISEASE

- Adult Shunt Ascites.....182  
*Volker K.H. Sonntag, M.D., et al*

### MEDICAL GENETICS

- Marfan Syndrome and Similar  
Genetics Disorders  
I. The Marfan Syndrome .....185  
*Frederick Hecht, M.D.*

### OBSTETRICS & GYNECOLOGY

- Delivery of Premature Infants ..... 187  
*Walter B. Cherny, M.D.*

### ONCOLOGY

- Pediatric Solid Tumors II:  
Rhabdomyosarcoma .....188  
*Terry S. Wood, M.D., et al*

### PSYCHIATRIC DISORDERS

- Key Concepts in Identifying  
the Alcoholic .....191  
*Thomas E. Bittker, M.D.*

### RADIOLOGY CASE OF THE MONTH

- No. 51 .....  
*Samuel*

## STATE OF THE ART

- A Current View of Prostatic Cancer .....195  
*Frederick Ahmann, M.D.*

## EDITORIALS

- Natural Allies—Auxilians .....198  
*John T. Clymer, M.D.*

- There are Only Two Sure Things In Life:  
Death and Taxes, or are There? ..... 198  
*Marshall B. Block, M.D.*

- Women In Medical School .....199  
*Marilyn Heins, M.D.*

- Auxiliary Highlights  
Health Education ..... 200

## IN MEMORIAM

- .....200

## ANNUAL MEETING PROGRAM

- ArMA Board of Directors ..... 204  
Schedule of Events ..... 206  
Scientific Assembly Committee ..... 211  
Guest Speakers ..... 212  
Scientific Exhibits ..... 212  
ArMA Auxiliary Schedule of Events ..... 213  
Convention Committee ..... 215  
ArMA Auxiliary Board of Directors..... 216

## REPORTS

- .....218

## MEETINGS

- .....222

THE LIBRARY OF THE  
S.F. CALIF. S.F.  
ACQUISITIONS DIV.  
MAY 1981 VOL. XXXVIII, NO. 3

# Examine Me.

During the past several years, I have heard my name mentioned in movies, on television and radio talk shows, and even at Senate subcommittee sessions. And I have seen it repeatedly in newspapers, magazines, and yes, best-sellers. Lately, whenever I see or hear the phrases "overmedicated society," "overuse," "misuse," and "abuse," my name is one of the reference points. Sometimes even *the* reference point.

These current issues, involving patient compliance or dependency-proneness, should be given careful scrutiny, for they may impede my overall therapeutic usefulness. As you know, a problem almost always involves improper usage. When I am prescribed and taken correctly, I can produce the effective relief for which I am intended.

Amid all this controversy, I ask you to reflect on and re-examine my merits. Think back on the patients in your practice who have been helped through your clinical counseling and prudent prescriptions for me. Consider your patients with heart problems, G.I. problems, and interpersonal problems who, when their anxiety was severe, have been able to benefit from the medication choice you've made. Recall how often you've heard, as a result, "Doctor, I don't know what I would have done without your help."

You and I can feel proud of what we've done together to reduce excessive anxiety and thus help patients to cope more successfully.

If you examine and evaluate me in the light of your own experience, you'll come away with a confirmation of your knowledge that I *am* a safe and effective drug when prescribed judiciously and used wisely.

For a brief summary of product information on Valium (diazepam/Roche)® , please see the following page. Valium is available as 2-mg, 5-mg and 10-mg scored tablets.



# Valium® diazepam/Roche

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety, symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy)

The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other anti-depressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d., adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

**Supplied:** Valium® (diazepam/Roche) Tablets, 2 mg, 5 mg and 10 mg—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10, Prescription Paks of 50, available in trays of 10.



Two convenient dosage forms: 100 mg (white) and 300 mg (peach) Scored Tablets



Tablets imprinted with brand name to assist in tablet identification.



Burroughs Wellcome Co.  
Research Triangle Park  
North Carolina 27709

*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.

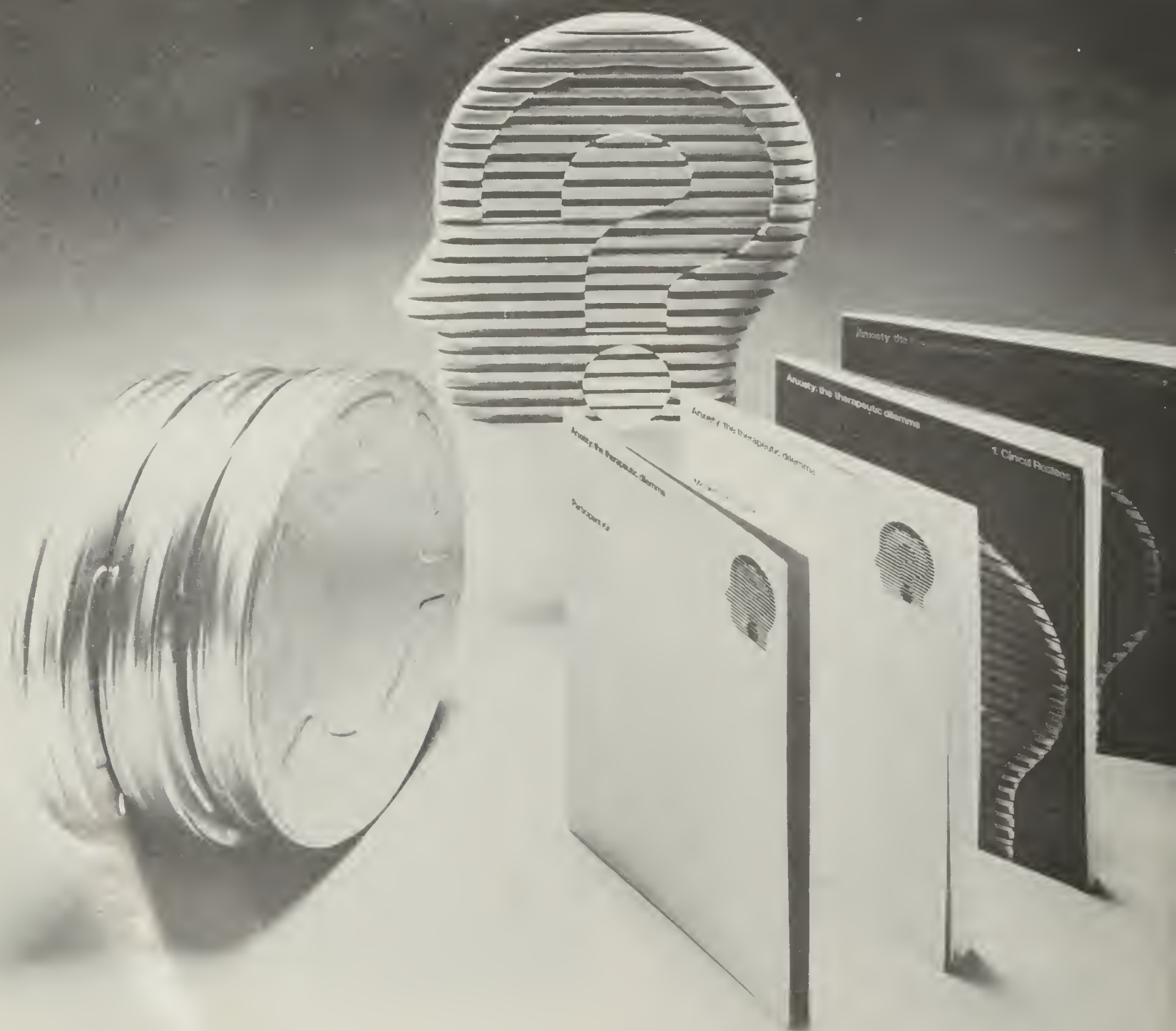


Roche Laboratories  
Division of Hoffmann-La Roche Inc  
Nutley, New Jersey 07110

**Now...today's issues  
in anxiety management  
are confronted in a unique program  
for primary care physicians**

## **Anxiety: the therapeutic dilemma**

Multimedia Continuing Education Program





Ideas about anxiety management are changing. Problems have surfaced. There is concern about dependence on minor tranquilizers and new findings on receptor sites in the brain. There is a trend toward short-term therapy and interest in nondrug alternatives. Because anxiety can disable, the need to treat continues in daily practice. Primary care physicians require up-to-date information. This program can provide it.

**Current Views and Opinions from Eminent Authorities**

Offered free of charge, this multimedia seminar is based on a major symposium. It integrates the views of nationally known clinicians with case material to demonstrate: 1) keys to differential diagnosis, 2) recognition and management of dependence-prone patients, 3) ways to minimize tranquilizer dependency, 4) guidelines for selecting drug and nondrug therapies, 5) how the biochemistry of anxiety can affect treatment modalities. And more.

**CME Accreditation**

The complete program, **Anxiety: the therapeutic dilemma**, is designed to provide up to a total of 26 credit hours in Category 1, PRA/AMA. The maximum number of hours may be obtained as follows:

**Seminar(s)**

When presented by an accredited CME provider (hour for hour) . . . up to 8 hours

**Self-Study Programs**

Designed to provide credit hours indicated when completed according to instructions:

- Two monographs (completed as a unit) . . . up to 6 hours
- Six self-study units (2 hours each) . . . up to 12 hours

**Unique Interactive Format Stimulates Participation**

More than a conventional lecture, this seminar provides opportunity (and guidance) for the kind of interaction that promotes understanding and anchors useful ideas. Guest lecturers are available and all elements needed for an effective program are included: films, moderator's guide, participants' workbooks, monographs, publicity material, etc.

**Flexible Program Design**

**Anxiety: the therapeutic dilemma** is a versatile program with an outstanding faculty, pertinent content and lively format. It can be conducted in a variety of ways to meet your scheduling needs: • Full day — 8 hour seminar • Half day — 4 hour seminar • 1 or 2 hour course

For further information, mail the coupon below, or call toll-free 800-526-4299. In New Jersey, call (201)-636-6600.

**Anxiety: the therapeutic dilemma**

was produced under a grant from Abbott Laboratories



1-0791 1033394

A-3/81

**M.E.D. Communications**  
**655 Florida Grove Road**  
**Hopelawn, NJ 08861**

Please send me full details on faculty, agenda, accreditation and booking for the CME seminar, **Anxiety: the therapeutic dilemma**.

Name \_\_\_\_\_  
(please print)

Title \_\_\_\_\_

Institution \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

# Yesterday's Folk Remedy:

## A rye loaf in the rafters.



Early in this century in Central Europe, almost every farm family kept a loaf of moldy rye bread on one of the kitchen beams. When any family member was cut or bruised, it was an old custom to cut a thin slice from the outside of the loaf, mix it into a paste with water, and apply it to the wound with a bandage. It was believed that no infection would then result from the cut.<sup>1</sup>





# Today's Tradition: **Tegopen**<sup>®</sup> (cloxacillin sodium)

**for the treatment\* of  
known or suspected  
staphylococcal  
infections such as:**

- Acute sinusitis
- Furunculosis and carbuncles
- Impetigo
- Secondarily infected dermatitis
- Cellulitis
- Abscesses
- Infected sebaceous cysts

**In serious, deep-seated  
staph infections, 500 mg  
q.i.d. dosage is  
recommended.<sup>†</sup>**

- Tegopen has been reported active against 96% of *Staphylococcus aureus*.<sup>2</sup>
- 80% of *S aureus* has been reported resistant to amoxicillin and ampicillin. ‡<sup>2</sup>
- 88% of *S aureus* has been reported resistant to penicillins G and V. ‡<sup>2</sup>
- Staph resistance to erythromycin may develop during a course of therapy.<sup>3</sup>



Available as 500-mg and 250-mg capsules  
and Oral Solution 125 mg/5 ml.

## **Tegopen**<sup>®</sup> (cloxacillin sodium) **Today's Penicillin for Today's Physician**

1 Florey HW, Chain E, Heatley NG, et al: *Antibiotics*. London, Oxford University Press, 1949, p 2.

2 Bac-Data Bacteriologic Report, Professional Market Research, 1978-1979. The clinical significance of *in vitro* data is unknown.

3 Erythromycin prescribing information (in *Physicians' Desk Reference*, ed 34. Oradell, NJ, Medical Economics Co, 1980) states that staph resistance may develop during treatment.

See brief summary of prescribing information on  
an adjoining page.

Copyright © 1981, Bristol Laboratories

\*Note: The choice of Tegopen should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci, Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the bacteriology report later indicates that the infection is due to an organism other than a penicillin G-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semisynthetic penicillin.

†In serious, life-threatening infections, oral preparations of the penicillinase-resistant penicillins should not be relied on for initial therapy.

‡Not all isolates may have been tested using both discs.

# Tegopen® (cloxacillin sodium) Capsules and Oral Solution

## Brief Summary of Prescribing Information

For complete information, consult Official Package Circular  
(12) 9/11/75

### INDICATIONS

Although the principal indication for cloxacillin sodium is in the treatment of infections due to penicillinase-producing staphylococci, it may be used to initiate therapy in such patients in whom a staphylococcal infection is suspected. (See Important Note below.)

Bacteriologic studies to determine the causative organisms and their sensitivity to cloxacillin sodium should be performed.

### IMPORTANT NOTE

When it is judged necessary that treatment be initiated before definitive culture and sensitivity results are known, the choice of cloxacillin sodium should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci, Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the bacteriology report later indicates the infection is due to an organism other than a penicillin G-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semi-synthetic penicillin.

Recent studies have reported that the percentage of staphylococcal isolates resistant to penicillin G outside the hospital is increasing, approximating the high percentage of resistant staphylococcal isolates found in the hospital. For this reason, it is recommended that a penicillinase-resistant penicillin be used as initial therapy for any suspected staphylococcal infection until culture and sensitivity results are known.

Cloxacillin sodium is a compound that acts through a mechanism similar to that of methicillin against penicillin G-resistant staphylococci. Strains of staphylococci resistant to methicillin have existed in nature and it is known that the number of these strains reported has been increasing. Such strains of staphylococci have been capable of producing serious disease, in some instances resulting in fatality. Because of this, there is concern that widespread use of the penicillinase-resistant penicillins may result in the appearance of an increasing number of staphylococcal strains which are resistant to these penicillins.

Methicillin-resistant strains are almost always resistant to all other penicillinase-resistant penicillins (cross-resistance with cephalosporin derivatives also occurs frequently). Resistance to any penicillinase-resistant penicillin should be interpreted as evidence of clinical resistance to all, in spite of the fact that minor variations in *in vitro* sensitivity may be encountered when more than one penicillinase-resistant penicillin is tested against the same strain of staphylococcus.

### CONTRAINDICATIONS:

A history of a previous hypersensitivity reaction to any of the penicillins is a contraindication.

### WARNING:

Serious and occasionally fatal hypersensitivity (anaphylactoid) reactions have been reported in patients on penicillin therapy. Although anaphylaxis is more frequent following parenteral therapy it has occurred in patients on oral penicillins. These reactions are more apt to occur in individuals with a history of sensitivity to multiple allergens.

There have been well documented reports of individuals with a history of penicillin hypersensitivity reactions who have experienced severe hypersensitivity reactions when treated with a cephalosporin. Before therapy with a penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, and other allergens. If an allergic reaction occurs, the drug should be discontinued and the patient treated with the usual agents, e.g., pressor amines, antihistamines, and corticosteroids.

Safety for use in pregnancy has not been established.

### PRECAUTIONS:

The possibility of the occurrence of superinfections with mycotic organisms or other pathogens should be kept in mind when using this compound, as with other antibiotics. If superinfection occurs during therapy, appropriate measures should be taken.

As with any potent drug, periodic assessment of organ system function, including renal, hepatic, and hematopoietic, should be made during long-term therapy.

### ADVERSE REACTIONS:

Gastrointestinal disturbances, such as nausea, epigastric discomfort, flatulence, and loose stools, have been noted by some patients. Mildly elevated SGOT levels (less than 100 units) have been reported in a few patients for whom pretherapeutic determinations were not made. Skin rashes and allergic symptoms, including wheezing and sneezing, have occasionally been encountered. Eosinophilia, with or without overt allergic manifestations, has been noted in some patients during therapy.

### USUAL DOSAGE:

Adults: 250 mg q 6h

Children: 50 mg /Kg /day in equally divided doses q 6h. Children weighing more than 20 Kg. should be given the adult dose. Administer on empty stomach for maximum absorption.

**N.B. INFECTIONS CAUSED BY GROUP A BETA-HEMOLYTIC STREPTOCOCCI SHOULD BE TREATED FOR AT LEAST 10 DAYS TO HELP PREVENT THE OCCURRENCE OF ACUTE RHEUMATIC FEVER OR ACUTE GLOMERULONEPHRITIS.**

### SUPPLY:

Capsules—250 mg. in bottles of 100. 500 mg. in bottles of 100.  
Oral Solution—125 mg./5 ml. in 100 ml. and 200 ml. bottles.

**BRISTOL®**

Bristol Laboratories  
Division of Bristol-Myers Company  
Syracuse, New York 13201

## YOU WORKED HARD

FOR THAT  
DIPLOMA..



why not have it  
laminated?

it will last a lifetime....

## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.

7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

## MEDICAL BOOKSTORE



The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

## MEDICAL BOOKSTORE

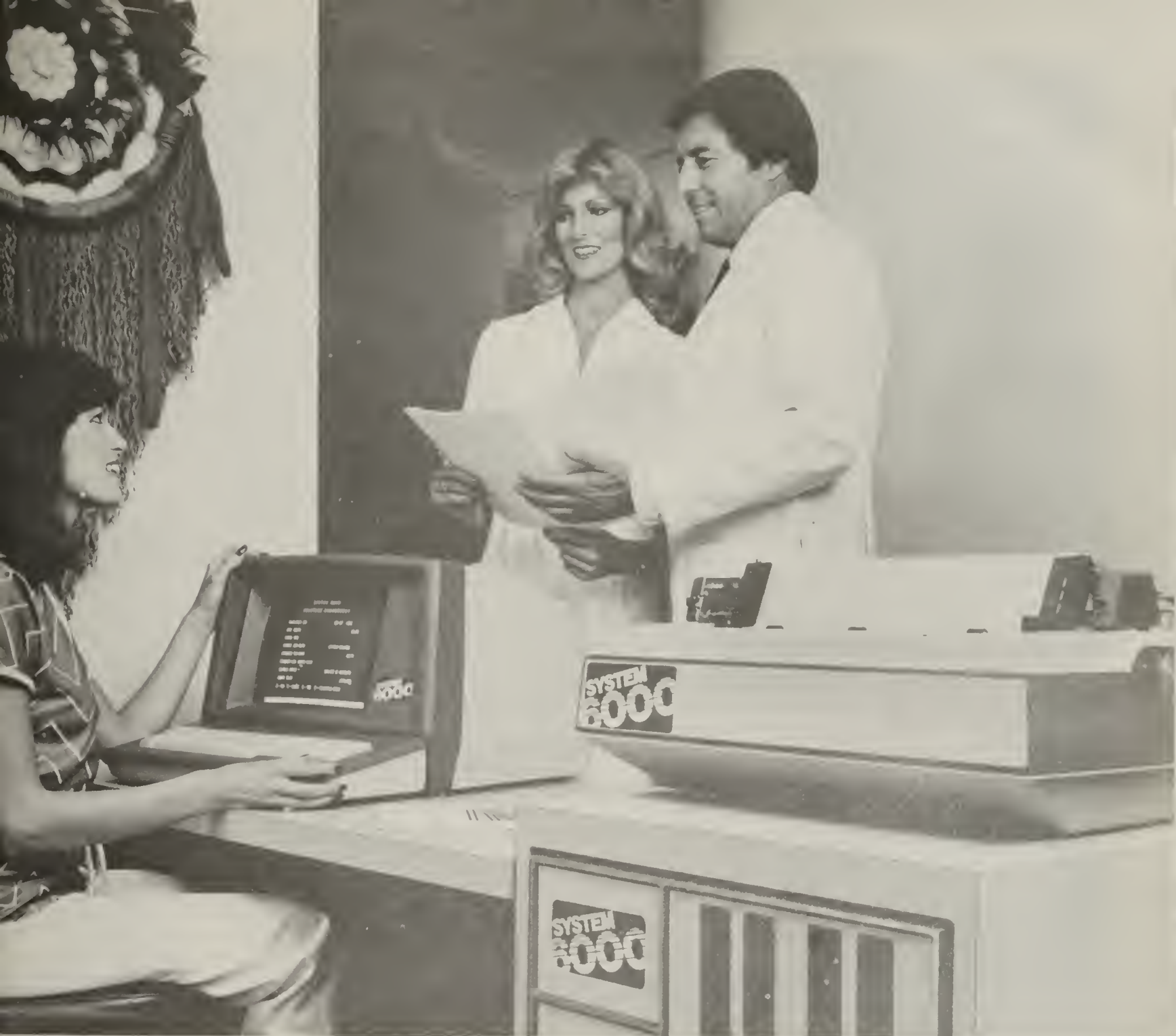
College of Medicine

Arizona Health Sciences Center

Tucson, Arizona 85724

Phone: 626-6669





## Find out how the System 6000 can help your practice.

**Introducing the System 6000 computer for doctors.** If you've ever thought about a computer to help manage your practice, now is the time to find out more.

Computer Information is introducing the System 6000. It is the most complete practice management computer we know of that is priced affordably for a doctor.

**Ask to see a demonstration of the 6000's features — using your data.** Discover how a computer can improve managerial control — how it takes slack out of even a well-run practice.

Investigate the ways that the 6000 can cut costs, increase productivity and increase profits. In fact, let a representative compute how long before the 6000 has paid for itself in your practice.

And learn about all the other areas in your practice that the 6000 helps: receivables, insurance forms, patient billing, practice analysis, recall, financial statements, payables, payroll, word processing and more.

**Is the 6000 right for you?** To find out, send for our product literature. Or better yet, ask us to perform an in-depth Management Analysis of your practice to determine your specific requirements.

In all modesty, finding out more

about the 6000 might very well be the healthiest thing you could do for your practice this year.

For more information, write or call:



**Computer Information Systems, Inc.**

20 East Main Street  
Fifth Floor  
Mesa, Arizona 85201

**Call collect (602) 834-8958**



## CHANCES ARE, THE CHECK WILL COME BACK FASTER IF YOU FILE A CLAIM FOR THEM.

Filing an insurance claim is really very simple. But most patients seldom file one. So their chances of making an error, or putting off mailing it, are greater. Those errors and delays make everybody unhappy. But together we can avoid that.

Blue Cross and Blue Shield will soon be unveiling some "high-tech" claims-processing equipment, right here in Arizona. It will cut the turnaround time on an accurate claim for covered services, in *half*!

But we can't set the wheels in motion until an accurate claim is received, so we're asking your help.

Simply ask for the ID card, fill out the AMA uniform claim form, and see that it's mailed.

What's in it for you? Fast, accurate payment for the covered claims you submit in behalf of Blue Cross and Blue Shield patients. In a time of high interest, that's like money in the bank.

But there's a better reason: That simple step will relieve a lot of your patient's anxiety over "past due" notices from you.



**Blue Cross  
Blue Shield®**  
of Arizona

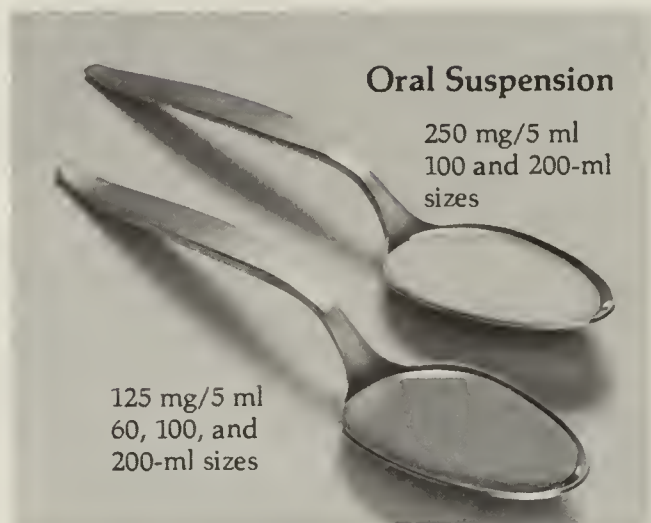
**"MAKING IT EASIER"**



# easy to take



250-mg Pulvules®



## Oral Suspension

250 mg/5 ml  
100 and 200-ml  
sizes

125 mg/5 ml  
60, 100, and  
200-ml sizes



## Pediatric Drops

100 mg/ml  
10-ml size

# Keflex®

cephalexin

Additional information available  
to the profession on request.



000823

Dista Products Company  
Division of Eli Lilly and Company  
Indianapolis, Indiana 46285  
Mfd. by Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630

***"We're getting good billing  
because it costs a lot!"***

Gullible  
PC



Sure...and the way to select a good attorney is to find the one who charges the most. Let's get serious.

Relating performance to cost is not always smart. Right now, we can't name one office who can do a better job of billing or do it for less than us. With well conceived computer programs and billing procedures, there are ways to keep both losses and costs to an absolute minimum. The secret is in our background and experience.



**The Anesthesia Office, Inc.**

Main Office: Post Office Box 39429, Phoenix, Arizona 85069 (602) 242-1908





**WHEN  
IT  
COUNTS**

**EXPERIENCE • INTEGRITY**

**Professional Services For**

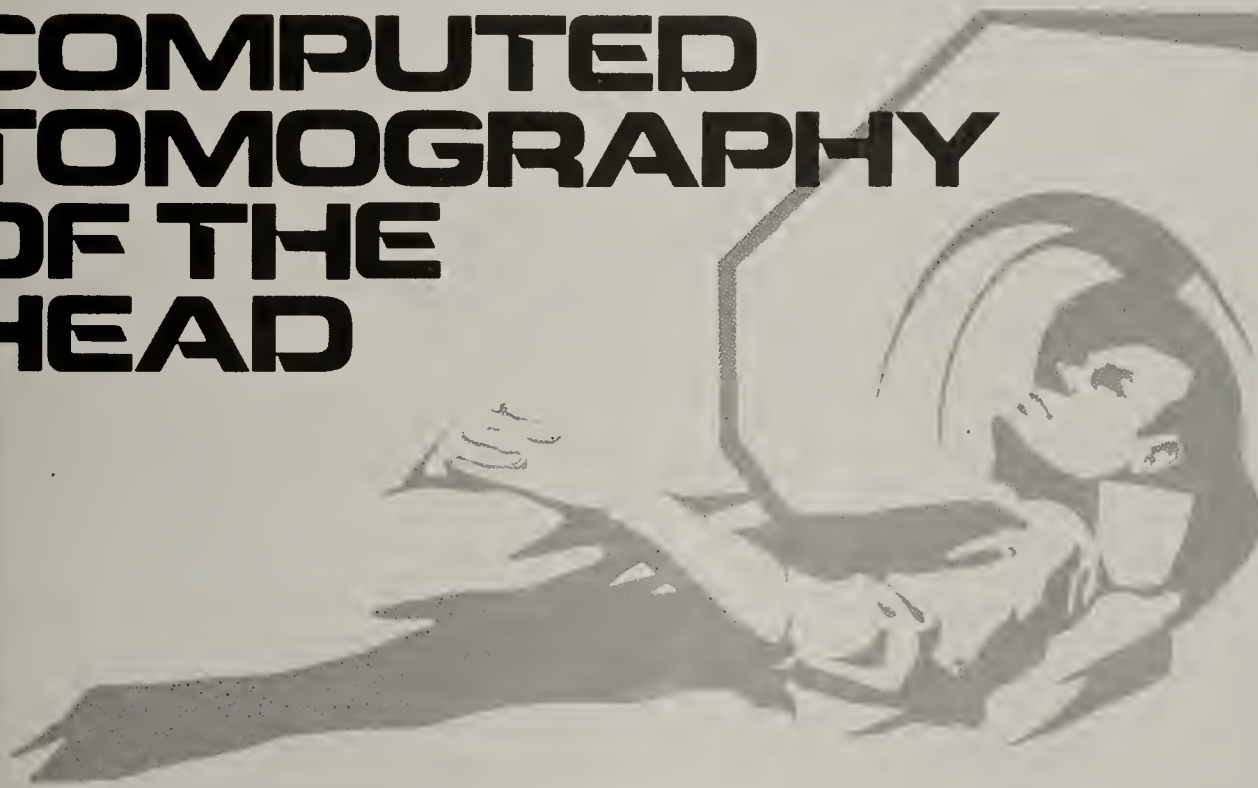
- Corporations
- Partnerships
- Individuals
- Estates and Trusts

- Tax Planning and Return Preparation
- Accounting Services
- Estate Planning and Return Preparation
- Audits, Reviews and Compliations

*OFFICES IN THE FOLLOWING LOCATIONS TO SERVE YOU*

|                                                                                             |                                                                                                   |                                                                                                                                     |                                                                                                                   |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>PHOENIX</b><br>3620 North Thlrd Street<br>Phoenix, Arizona 85012<br>(602) 264-3751       | <b>TEMPE</b><br>700 East Basellne Road<br>Tempe, Arizona 85282<br>(602) 839-4900                  | <b>SUN CITY</b><br>Bell Plaza Professional Building<br>10451 Palmeras Drive, Suite 122<br>Sun City, Arizona 85282<br>(602) 974-3641 | <b>LAKE HAVASU CITY</b><br>1845 McCulloch Blvd., Sulte B-102<br>Lake Havasu City, Arizona 86403<br>(602) 855-3092 |
| <b>MESA</b><br>12 North Center Street<br>Mesa, Arizona 85201<br>(602) 834-9400              | <b>CHANDLER</b><br>600 West Ray Road, Sulte B-1<br>Chandler, Arizona 85224<br>(602) 963-3556      | <b>COOLIDGE</b><br>347 West Central<br>Coolidge, Arizona 85228<br>(602) 723-7714                                                    | <b>PINE TOP</b><br>P.O. Box 1489<br>Pine Top, Arizona 85935<br>(602) 336-1600                                     |
| <b>SCOTTSDALE</b><br>7300 East Camelback Rd.<br>Scottsdale, Arizona 85251<br>(602) 994-9044 | <b>CASA GRANDE</b><br>711 East Cottonwood, Sulte C<br>Casa Grande, Arizona 85222<br>(602)836-8201 | <b>ELOY</b><br>515 North Main<br>Eloy, Arizona 85231<br>(602) 466-7349                                                              | <b>TUCSON</b><br>7322 North Oracle<br>Tucson, Arizona 85704<br>(602) 297-7242                                     |

# COMPUTED TOMOGRAPHY OF THE HEAD



## **CNS** Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207.  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

**When painful spasm  
is the presenting  
symptom...**





# Single Entity Bentyl®

(dicyclomine hydrochloride USP)

10 mg. capsules, 20 mg. tablets, 10 mg./5 ml. syrup, 10 mg./ml. injection

## On target for the functional bowel/irritable bowel syndrome\*

### Single entity means

- ⊕ a variety of Bentyl dosage forms (tablets, capsules, syrup, injectable) that lets you tailor the dose to your patient's primary need
- ⊕ freedom to choose and titrate concomitant medication when a psychogenic disorder coexists

### On target means

- ⊕ bioequivalence of oral dosage forms that permits patient's choice—fosters patients' compliance
- ⊕ bioavailability of all dosage forms that encourages therapeutic effect
- ⊕ significant pharmacologic activity that can be demonstrated at the target site in the distal colon (Figure 1)

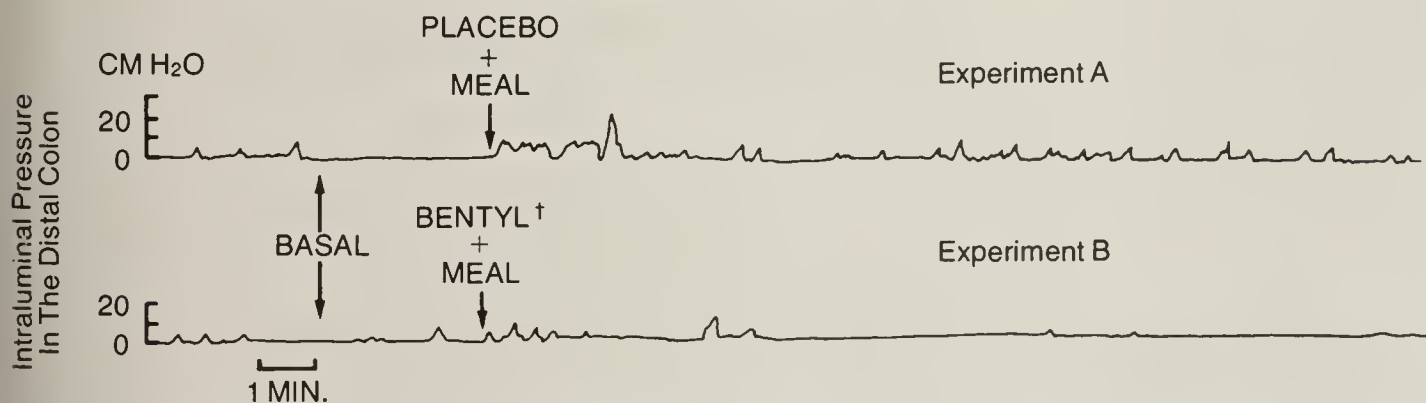


**Fig. 1.** In ten irritable colon patients, the mean motility index for the colonic wave patterns following a meal and intramuscular placebo was calculated at  $86 \pm 28$ . On a separate day, the mean motility index for the colonic wave patterns following a meal plus intramuscular Bentyl was calculated at  $14 \pm 8$ . The decrease in motor activity induced by Bentyl† was statistically significant ( $p < 0.05$ ) in spite of the wide range of the standard error of the mean. The above graph illustrates the intraluminal pressure findings in one of the patients typical of the group studied.

from a study by A.R. Chowdhury  
and S.H. Lorber, 1980

\*This drug has been classified "probably" effective for this indication.

† Although the dose of Bentyl used to show pharmacologic effect was 50 mg., which is a higher single dose than that permitted in the labeling, the dose was considered justified, since the recommended daily dose of injectable Bentyl is 20 mg. (2 ml.) every 4 to 6 hours. Thus, in 8 hours, a patient could receive a total of 60 mg. I.M. and, at that time, as a result of the sustained plasma levels from the 20 mg. injections at 0 and 4 hours, might show an even higher plasma level than occurs after a single 50 mg. dose. Presumably, the same pharmacologic effect, as shown in Figure 1, would follow. These observations do not constitute evidence of efficacy.

# Merrell

# Bentyl®

(dicyclomine hydrochloride USP)

Capsules, Tablets, Syrup, Injection

AVAILABLE ONLY ON PRESCRIPTION

Brief Summary

## INDICATIONS

Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the following indications as "probably" effective:

For the treatment of functional bowel/irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.

THESE FUNCTIONAL DISORDERS ARE OFTEN RELIEVED BY VARYING COMBINATIONS OF SEDATIVE, REASSURANCE, PHYSICIAN INTEREST, AMELIORATION OF ENVIRONMENTAL FACTORS.

For use in the treatment of infant colic (syrup).

Final classification of the less-than-effective indications requires further investigation.

**CONTRAINDICATIONS:** Obstructive uropathy (for example, bladder neck obstruction due to prostatic hypertrophy); obstructive disease of the gastrointestinal tract (as in achalasia, pyloroduodenal stenosis); paralytic ileus, intestinal atony of the elderly or debilitated patient; unstable cardiovascular status in acute hemorrhage; severe ulcerative colitis; toxic megacolon complicating ulcerative colitis; myasthenia gravis.

**WARNINGS:** In the presence of a high environmental temperature, heat prostration can occur with drug use (fever and heat stroke due to decreased sweating). Diarrhea may be an early symptom of incomplete intestinal obstruction, especially in patients with ileostomy or colostomy. In this instance treatment with this drug would be inappropriate and possibly harmful. Bentyl may produce drowsiness or blurred vision. In this event, the patient should be warned not to engage in activities requiring mental alertness such as operating a motor vehicle or other machinery or perform hazardous work while taking this drug. There are rare reports of infants, 6 weeks of age and under, administered dicyclomine hydrochloride syrup, who have evidenced respiratory symptoms (breathing difficulty, shortness of breath, breathlessness, respiratory collapse, apnea), as well as seizures, syncope, asphyxia, pulse rate fluctuations, muscular hypotonia, and coma. The above symptoms have occurred within minutes of ingestion and lasted 20 to 30 minutes. The timing and nature of the reactions suggest that they were a consequence of local irritation and/or aspiration rather than a direct pharmacologic effect. No known deaths or permanent adverse effects have been reported. Bentyl syrup should be used with caution in this age group.

**PRECAUTIONS:** Although studies have failed to demonstrate adverse effects of dicyclomine hydrochloride in glaucoma or in patients with prostatic hypertrophy, it should be prescribed with caution in patients known to have or suspected of having glaucoma or prostatic hypertrophy.

Use with caution in patients with:

Autonomic neuropathy. Hepatic or renal disease. Ulcerative colitis. Large doses may suppress intestinal motility to the point of producing a paralytic ileus and the use of this drug may precipitate or aggravate the serious complication of toxic megacolon.

Hyperthyroidism, coronary heart disease, congestive heart failure, cardiac arrhythmias, and hypertension.

Hiatal hernia associated with reflux esophagitis since anticholinergic drugs may aggravate this condition.

Do not rely on the use of the drug in the presence of complication of biliary tract disease. Investigate any tachycardia before giving anticholinergic (atropine-like) drugs since they may increase the heart rate. With overdosage, a curare-like action may occur.

**ADVERSE REACTIONS:** Anticholinergics/ antispasmodics produce certain effects which may be physiologic or toxic depending upon the individual patient's response. The physician must delineate these. Adverse reactions may include xerostomia; urinary hesitancy and retention; blurred vision and tachycardia; palpitations; mydriasis; cycloplegia; increased ocular tension; loss of taste; headache; nervousness; drowsiness; weakness; dizziness; insomnia; nausea; vomiting; impotence; suppression of lactation; constipation; bloated feeling; severe allergic reaction or drug idiosyncrasies including anaphylaxis; urticaria and other dermal manifestations; some degree of mental confusion and/or excitement, especially in elderly persons; and decreased sweating. With the injectable form there may be a temporary sensation of lightheadedness and occasionally local irritation.

**DOSAGE AND ADMINISTRATION:** Dosage must be adjusted to individual patient's needs.

### Usual Dosage

Bentyl 10 mg. capsule and syrup: *Adults:* 1 or 2 capsules or teaspoonfuls syrup three or four times daily. *Children:* 1 capsule or teaspoonful syrup three or four times daily. *Infants:* ½ teaspoonful syrup three or four times daily. (Dilute with equal volume of water.)

Bentyl 20 mg.: *Adults:* 1 tablet three or four times daily.

Bentyl Injection: *Adults:* 2 ml. (20 mg.) every four to six hours intramuscularly only.

NOT FOR INTRAVENOUS USE.

**MANAGEMENT OF OVERDOSE:** The signs and symptoms of overdose are headache, nausea, vomiting, blurred vision, dilated pupils, hot, dry skin, dizziness, dryness of the mouth, difficulty in swallowing, CNS stimulation. Treatment should consist of gastric lavage, emetics, and activated charcoal. Barbiturates may be used either orally or intramuscularly for sedation but they should not be used if Bentyl with Phenobarbital has been ingested. If indicated, parenteral cholinergic agents such as Urecholine® (bethanechol chloride USP) should be used.

Product Information as of July, 1980

Injectable dosage forms manufactured by  
CONNAUGHT LABORATORIES, INC.  
Swiftwater, Pennsylvania 18370 or  
TAYLOR PHARMACAL COMPANY  
Decatur, Illinois 62525 for  
MERRELL-NATIONAL LABORATORIES  
Division of Richardson-Merrell Inc.  
Cincinnati, Ohio 45215, U.S.A.

**Merrell**

1-6707 (Y175C) MNQ-443R

# WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully bound books. Choose from 30 different colors of durable Library Buckram

**\$13.50 per volume, (name imprint.75)**

**\$15.00 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

**Free local pickup and delivery on 10 volumes or more**

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue

Phoenix, Arizona 85009

272-9338

## Valley Prosthetics, Inc.

*announces that*

**Vernon H. Lehde**

**Certified Prosthetist—Orthotist**

has recently joined the staff of  
Valley Prosthetics with

55 years past experience, adding  
**Orthopedic Appliances**

to its other services of

**Artificial Limbs, Medical Equipment**

**Rental and Handicab Service.**

**Telephone for appointment-894-0145**  
**734 E. Broadway, Tempe, Arizona**



# Camelback Hospitals' ANOREXIA NERVOSA Treatment Program



Camelback Hospitals' therapy program has been especially designed by the hospital staff for the treatment of anorexia nervosa. Features of this unique program, in which referring physicians are invited to participate, include:

- Personal effectiveness training, which teaches the anorexic how to express ideas, thought and feelings... how to identify and manage stress.

- Art-Music-Movement therapies to help reconcile emotional conflicts and reduce the anorexic's distorted body image.

- Psychodrama, which helps the anorexic develop effective ways to communicate and gain a greater sense of emotional independence. Families are encouraged to participate in the psychodrama experience.

Hospitalization can be extremely helpful in breaking the binge eating-vomiting cycle that affect many anorexics. Camelback Hospitals offer a highly specialized approach to diet and nutrition, along with the services of a professional medical house staff...on call 24 hours a day.

## Other Services

In addition to the treatment program for anorexia nervosa, Camelback Hospitals offer

- Alcohol and Drug Abuse Programs
- Day Treatment Programs
- Young Adult Treatment Programs
- Adolescent Treatment Programs (patients 13 to 17 years of age participate in both the Adolescent and Anorexic Programs)
- Acute psychiatric care for adults
- Geriatric Treatment Program
- Family, group and individual psychotherapy
- Occupational and recreational therapy — Psychodrama
- Social Services

## About the Hospitals

Camelback Hospitals, located in Phoenix and Scottsdale, Arizona, provide intensive, multidisciplinary diagnostic and short term treatment designed to alleviate psychiatric symptoms, increase self-awareness and build psychosocial competence.

Special emphasis is placed on sharing with each patient a more complete understanding of himself, so that he can participate in his therapy with insight and intelligence.

An open medical staff of more than 60 psychiatrists, psychologists, psychiatric nurses, social workers and activity therapists provide 24 hour care.

Camelback Hospitals and Camelback Mental Health Center are fully accredited and licensed by the State of Arizona.



**Camelback Hospitals**

5055 North 34th Street  
Phoenix, Arizona 85018  
(602) 955-6200

7575 East Earll Drive  
Scottsdale, Arizona 85251  
(602) 941-1108

"Joint Life is the insurance of the '70's"

## Doctor, HBA Life's

### JOINT LIFE INSURANCE insures two people with only one policy, one low premium

with these advantages:

**BUSINESS INSURANCE:** Two doctors, partners or associates in a professional corporation, will find this plan a low-cost way to provide funds if one of the two dies. It also may be used by husband and wife or father and son to provide funds to pay off special debts or for any of the other purposes for which life insurance may be used.

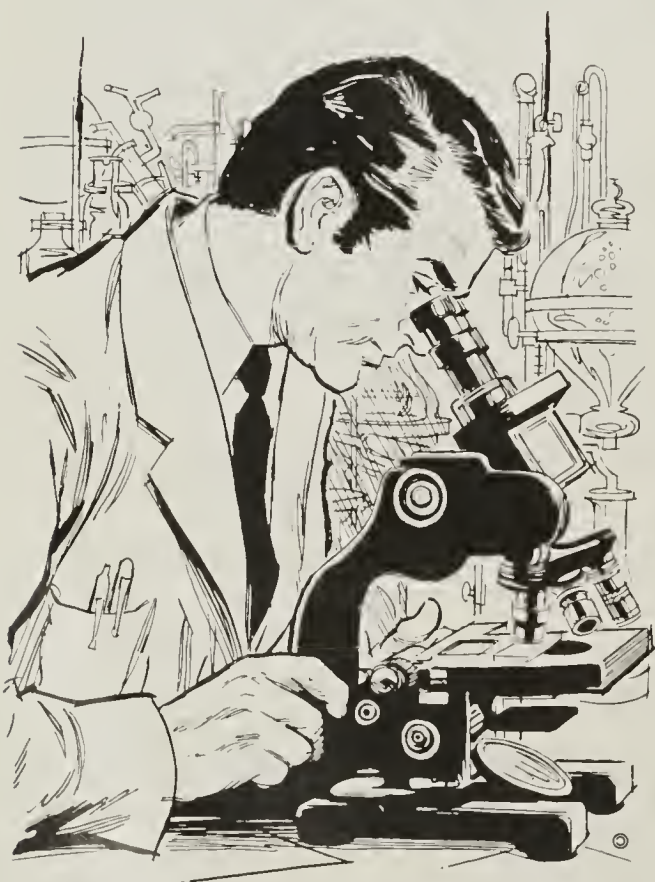
**LOWER INSURANCE AGE:** Often, one insured is somewhat younger than the other. The joint equal age can take years off the age of the older insured. The policy provides for the payment of the face amount upon the death of the first of the two insureds to die.

**GUARANTEES SURVIVOR INSURABILITY:** The surviving insured, within 90 days and prior to age 70, is guaranteed the right to purchase life insurance. If the surviving insured doesn't exercise this right and dies during this 90-day period, the conversion would automatically be made by the Company and the face amount, less the conversion premium, would be paid to his beneficiary.

**DOUBLE FOR SIMULTANEOUS DEATH:** If both insureds should die simultaneously, the sum insured upon their deaths would be paid to their beneficiaries.

**CONVERTIBLE TO SINGLE LIFE:** The Joint Life Insurance may also be converted to single insurance prior to the older insured's 60th birthday. The amount converted can be all on one life or the other or divided between the two as long as each does not take less than \$1,000 of life insurance.

An HBA Life Agent would be glad to discuss it further at your convenience.



**THE HBA LIFE**  
**INSURANCE COMPANY**

1337 N. FIRST ST. • PHOENIX • 258-4885

**A Local Company Serving the West Since 1944**



# In Hypertension\*...When You Need to Conserve K<sup>+</sup>

## Every Step of the Way

Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

ADD OR SUBSTITUTE  
GUANETHIDINE

ADD  
VASODILATOR

ADD BETA-BLOCKER, CNS  
INHIBITOR OR RESERPINE

**EFFECTIVE STEP 1  
DIURETIC THERAPY<sup>†</sup>** (when the  
combination represents previously titrated dosage)

<sup>†</sup>Step 1 usually consists of an initial phase (a diuretic alone), a titration phase (dosage adjustment and/or addition of a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent) and a maintenance phase (a diuretic alone or in combination with a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent).

### Serum K<sup>+</sup> and BUN should be checked periodically (see Warnings).

Before prescribing, see complete prescribing information in SK&F Co. literature or PDR. A brief summary follows:

#### WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K<sup>+</sup> levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K<sup>+</sup> intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, throm-

bocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Watch for signs of impending coma in severe liver disease. If spironolactone is used concomitantly, determine serum K<sup>+</sup> frequently, both can cause K<sup>+</sup> retention and elevated serum K<sup>+</sup>. Two deaths have been reported with such concomitant therapy (in one, recommended dosage was exceeded, in the other serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with thiazides. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Anti-hypertensive effect may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with

possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia, although uncommon, has been reported. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances. Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and, rarely, allergic pneumonitis have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components.

**Supplied:** Bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

©SK&F Co., 1980

**SK&F CO.**  
a SmithKline company  
Carolina, P.R. 00630



# Colleges shouldn't have to choose between lighting their buildings and enlightening their students.

—Thomas Edison  
Inventor

There's nothing more frustrating for a scientist than to be on the verge of a great discovery and not be able to afford the equipment he needs. I know.

When I was a boy, I had to work overtime to get the money I needed for equipment. But somehow I eventually got what I had to have for my experiments.

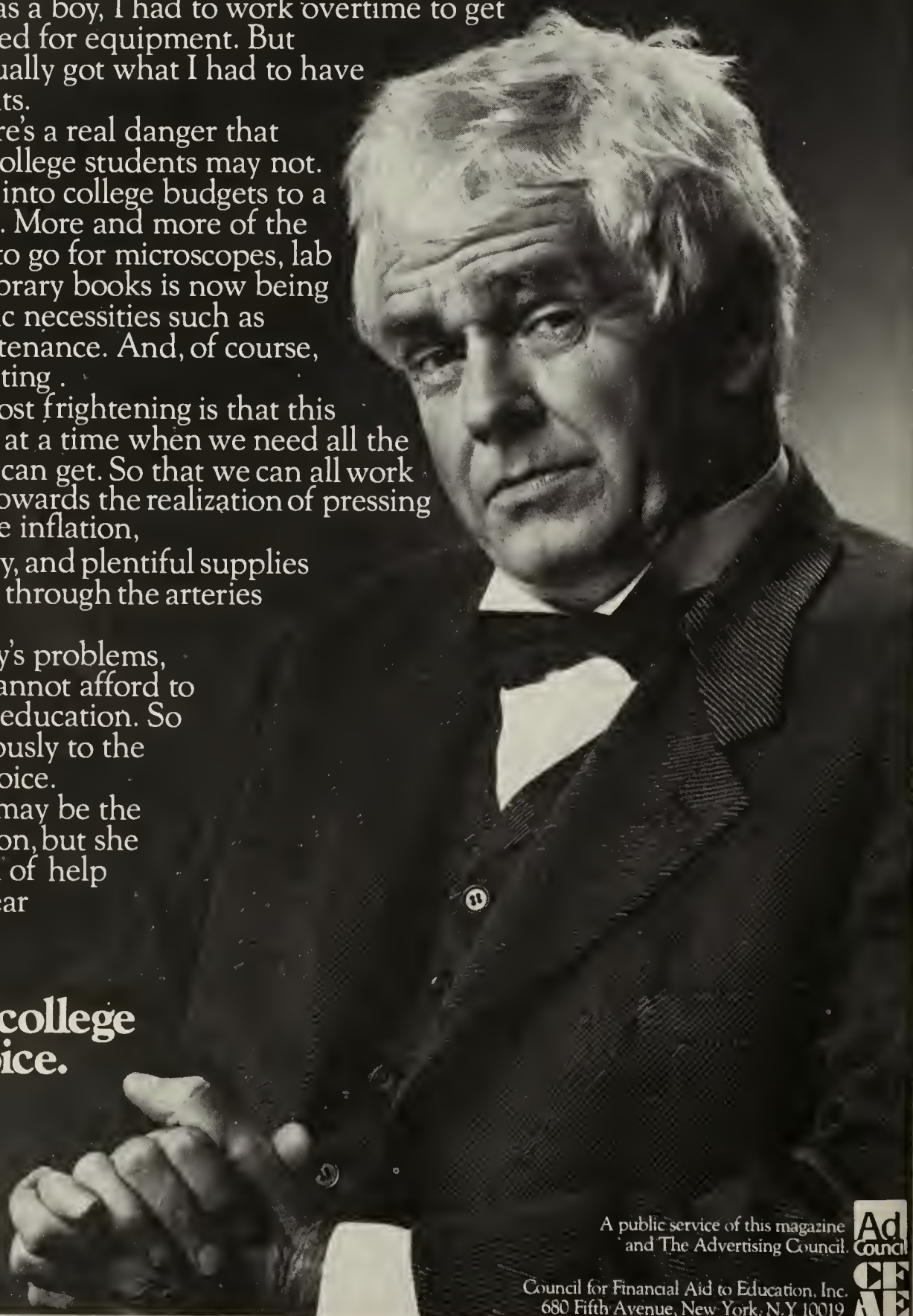
Today there's a real danger that many American college students may not. Inflation is eating into college budgets to a dangerous degree. More and more of the money that used to go for microscopes, lab equipment and library books is now being consumed by basic necessities such as heating and maintenance. And, of course, my specialty—lighting.

What is most frightening is that this squeeze is coming at a time when we need all the trained minds we can get. So that we can all work more effectively towards the realization of pressing goals: manageable inflation, revitalized industry, and plentiful supplies of energy coursing through the arteries of this country.

With today's problems, America simply cannot afford to have second-best education. So please give generously to the college of your choice.

Necessity may be the mother of invention, but she needs a great deal of help if she's going to bear children.

**Help!  
Give to the college  
of your choice.**



A public service of this magazine  
and The Advertising Council.

Council for Financial Aid to Education, Inc.  
680 Fifth Avenue, New York, N.Y. 10019





# YES DOCTOR

You and your colleagues can own  
THE MEDICAL OFFICE BUILDING  
you've been discussing . . .

## with 100% FINANCING



TOTAL SERVICE CONCEPT



Does site selection, zoning and land purchasing.



Selects and specifies all building materials.



Handles all architectural, engineering, and electrical.



Creates landscape design.



Provides economic feasibility studies, arranges all legal and accounting work.



Obtains equipment leasing, computer billing, interior design.



Prepares tenant leases—recruits additional tenants.



Prepares financial statement, puts together loan applications for permanent and construction loans.

PLUS OBTAIN

### all equity cash required for a total turn-key project

(ONE GUARANTEED PRICE)

CALL LEN KAPLAN (714) 481-1274

HE'D LIKE TO ANSWER YOUR  
QUESTIONS  
AND PERHAPS ARRANGE A MEETING

HEALTH FACILITIES DEVELOPMENT INC.  
777 S. Pacific Coast Hwy. #206  
Solana Beach, Ca. 92075

Your concept sounds interesting!

- ☐ We would like you to meet with our group to discuss the possibility of developing our own medical office building.
- ☐ Our group is very much interested in your medical office building concept, we would however like to ask a few questions pertaining to our project.

DR/MR/MS \_\_\_\_\_

ADDRESS \_\_\_\_\_

TEL. \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

ZIP \_\_\_\_\_



*Cardiology*

## **Surgical Management of Post-Infarction Aneurysm of the Cardiac Ventricle**

Cecil C. Vaughn, M.D.  
Charles M. Rucker, M.D.  
R. Randall Grace, M.D.  
Cecil C. Vaughn, III, B.A.

Editor:  
Kenneth B. Desser, M.D.

The tragic sequelae of post-infarction aneurysm of the cardiac ventricle encompass a wide clinical spectrum. Five to fifteen percent of patients who survive myocardial infarction develop left ventricular aneurysm.<sup>1</sup> Some patients remain asymptomatic; of those who develop congestive heart failure, only twenty percent survive five years without operation. With surgery approximately three-fourths of patients survive for four years.<sup>2</sup> Left ventricular aneurysm resection, frequently combined with myocardial revascularization, can be offered with low mortality risk and hope of significant cardiac rehabilitation.<sup>3</sup>

From: The Department of Thoracic and Cardiovascular Surgery, St. Luke's Hospital Medical Center, 525 North 18th Street, Phoenix, Arizona 85006. Dr. Cecil C. Vaughn - Chairman, Department of Thoracic and Cardiovascular Surgery, Cecil C. Vaughn, III, B.A. - Cardiovascular Research, St. Luke's Hospital; Department of Health Sciences, Arizona State University.

### **Clinical Experience:**

From November 1975, through July 1980, sixty-nine patients underwent resection of left ventricular aneurysm by members of the Cardiac Surgical Staff at St. Luke's Hospital Medical Center, Phoenix, Arizona. The diagnosis was made in all cases by cineventriculography performed at the time of selective coronary arteriography. Only cases with full-thickness myocardial scar were included in this study. Fifty-eight patients (84%) were male, eleven (16%) were female. Average patient age was 57.7 years. Sixty-five (92%) of the patients had a definite history of myocardial infarction.

Indications for surgery included congestive heart failure (74%), angina pectoris (71%), ventricular arrhythmias (3.7%) and peripheral arterial emboli (1.8%). The left ventricular end-diastolic pressure





Figure 1A

Technique of cannulation of cardiopulmonary bypass.



Figure 2

Dissection of adhesions between the aneurysm (under surgeon's hand) and pericardium.

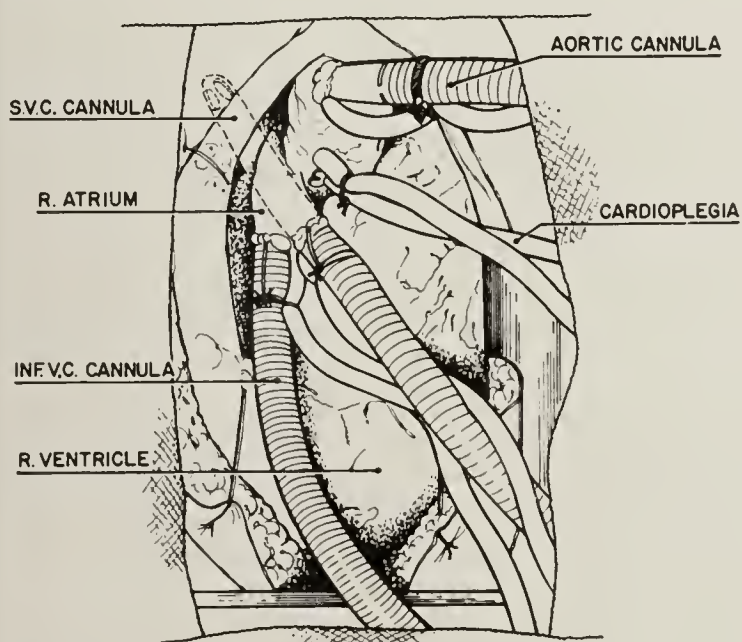


Figure 1B

Technique of cannulation for cardiopulmonary bypass.

ranged from 13-44mm Hg with a mean pressure of 21.4mm Hg.

Sixty patients (87%) had aortocoronary bypass done at the time of left ventricular aneurysm resection. Six patients (8.7%) also had cardiac valve replacement at the time of aneurysm resection (one aortic, five mitral). One patient underwent closure of post-infarction ventricular septal defect along with the resection of the left ventricular aneurysm.

Eight patients (11.6%) had left ventricular aneurysm resection performed as an isolated procedure.

Eight patients (11.6%) sustained perioperative myocardial infarction. Five patients (7.2%) died during or immediately following operation. Of those patients who died, all had severe, diffuse coronary artery disease and required multiple aortocoronary bypass grafts and/or cardiac valve replacement. There were no operative deaths in those patients who had left ventricular aneurysm resection performed as an isolated procedure.





**Figure 3**

The aneurysm (forceps) is exposed; ventriculotomy is begun with scalpel.



**Figure 4**

Resection of fibrotic aneurysm wall and underlying endocardial thrombus.

Eight patients required intra-aortic balloon assist after surgery. Four of these survived.

The only useful preoperative parameters in predicting the outcome of resection of left ventricular aneurysm were the severity of the coronary artery disease and left ventricular function.

#### **Surgical Technique:**

All operations were accomplished through mid-sternotomy incisions using total cardiopulmonary bypass. Venous and arterial cannulations for bypass were carried out with minimal cardiac manipulation to avoid dislodging endocardial thrombus and causing peripheral arterial embolization. The ascending aorta was usually used for arterial return from the pump. The use of two venous catheters and caval occlusion provides better cardiac venous drainage and superior maintenance of cold myocardial temperatures.<sup>4</sup> (Figure 1) Systemic and topical hypothermia combined with cold potassium cardioplegia were used for myocardial protection.

Dense adhesions between the left ventricular aneurysm and pericardium are commonly found (Figure 2). Dissection of adhesions necessitates manipulation of the ventricle. This is done on total cardiopulmonary

bypass with the aorta cross clamped. Entry into the left pleural space often facilitates exposure and avoids myocardial injury.

The exposed aneurysm (Figure 3) is opened and the underlying clot is resected along with the fibrotic aneurysm wall (Figure 4). The line of resection is carried to within one centimeter of viable myocardium or to the base of the posterior papillary muscle of the mitral valve (Figure 5). Failure to remove the entire aneurysm will result in persistent left ventricular failure. The line of demarcation between the normally trabeculated myocardium and the smooth surface of the aneurysm wall is usually distinct. Following removal of the aneurysm, mitral valve replacement and/or closure of post-infarction ventricular septal defect can be accomplished. The ventriculotomy incision is closed in two layers over teflon felt pledgets (Figure 6). Coronary bypass grafts are then completed if needed.

#### **Comment:**

Left ventricular aneurysm was first described by John Hunter in 1757.<sup>5</sup> Beck,<sup>6</sup> in 1944, first operated on a patient with left ventricular aneurysm using a plication technique. The size of the aneurysm was reduced by placing fascial sutures through the pericardium over the





Figure 5

Resection is carried to the base of the posterior papillary muscle of the mitral valve (forceps).

aneurysm. Beck's patient died of encephalomalacia five weeks after operation. Bailey,<sup>7</sup> in 1958, used special clamps to accomplish ventriculoplasty by closed techniques. Five of six patients survived operation. Cooley<sup>8</sup> reported the first successful resection of left ventricular aneurysm using cardiopulmonary bypass in 1958. From these beginnings have evolved the current techniques for diagnosis and management of left ventricular aneurysm. Initially resection was done as an isolated procedure.<sup>2</sup> Currently patients undergoing left ventricular aneurysm resection commonly have aortocoronary bypass grafts and/or cardiac valve replacement done concomitantly.

Najafi<sup>9</sup> reported mortality rates of ten percent when aneurysm resection was done as an isolated procedure. With coronary bypass his mortality rate was 5.4 percent. Shumway<sup>10</sup> reported an overall mortality rate of 17.8 percent, 10.9 percent for aneurysm resection alone, 21.1 percent when resection was combined with aortocoronary bypass and/or cardiac valve replacement. Five year survival was seventy-five percent when aneurysm resection was done because of angina pectoris. In those patients operated on because of



Figure 6

Ventriculotomy closure in two layers over teflon felt pledgets.

congestive heart failure, the five year survival was fifty-two percent and for ventricular arrhythmias, fifty-seven percent. The overall five year survival reported by Shumway was sixty percent. Of the survivors, ninety percent were Class I or Class II. Loop<sup>2</sup> reported 9.8 percent hospital mortality with seventy-six percent survival at four years.

The diagnosis of left ventricular aneurysm may be missed in the absence of symptoms. The electrocardiogram is often inconclusive and the chest x-ray may be normal. Free wall motion studies employing nuclear medicine techniques may be helpful. Definitive diagnosis is made by cineventriculography performed at the time of selective coronary angiography. The authors feel that any patient who has sustained myocardial infarction should have subsequent left ventriculography and selective coronary arteriography done at some appropriate time following infarction.

Indications for surgery include congestive heart failure, angina pectoris, ventricular arrhythmias and arterial embolization. Patients with left ventricular aneurysm are rarely asymptomatic; they should not be operated on but rather followed very carefully. Clearly defined endocardial thrombus seen on the left



ventriculogram is probably an indication for surgery even though the patient is asymptomatic.

A small percentage of patients will require resection because of life-threatening ventricular arrhythmias that cannot be controlled medically. The threat imposed by these arrhythmias is well documented in the literature.<sup>11-15</sup> Sami<sup>11</sup> reported ten patients who required operation because of recurrent ventricular tachycardia. Long term followup with Holter monitoring techniques showed a surprisingly high incidence of persistent, serious ventricular arrhythmias. Some authors<sup>2,16</sup> have found rhythm disturbances more common in large aneurysms. Sami<sup>11</sup> found no correlation of aneurysm size and ventricular arrhythmias. There were no operative deaths in his ten patients; however, two patients died at one and seven months following operations. Neither of these patients had undergone aortocoronary bypass at the time of ventricular aneurysm resection. Of the eight survivors, seven complained of frequent palpitations. Serious, persistent ventricular arrhythmias were documented by Holter monitoring in all of these patients.

One of our patients, operated on in 1976, had experienced approximately twenty episodes of ventricular tachycardia and fibrillation. Emergency left ventricular aneurysm resection was performed; the patient remains alive with no arrhythmias four years following operation.

Josephson and Horowitz<sup>17</sup> used endocardial mapping to locate an arrhythmogenic site. Ablation of this focus was found to be of benefit in some patients. Surgical techniques for controlling intractable ventricular arrhythmias include ventricular aneurysm resection, coronary bypass surgery, encircling endocardial ventriculotomy,<sup>18</sup> radial endocardial incision,<sup>19</sup> and use of implantable automatic defibrillators.<sup>20</sup> Mapping techniques with directed resection may prove to be superior to nondirected techniques currently used. Without mapping procedures, the results are unpredictable but nevertheless have proven beneficial in many patients.

Left ventricular aneurysms are usually located on the anterior surface of the heart near the apex. They usually result from obstruction of the left anterior coronary artery. Inferior and posterior aneurysms are rare;<sup>2,21,22</sup> however, posterior aneurysms are reported more commonly (19%-36%) in autopsy series.<sup>23-25</sup> This difference probably relates to the commonplace findings of hemodynamically significant mitral valve dysfunction associated with posterior aneurysm formation and infarction of the posterior papillary muscle. Dubost<sup>26</sup> reported twenty cases of aneurysm of the interventricular septum. This kind of aneurysm accounts for less than one percent of all reported cases. Dubost stressed the difficulty of the preoperative diagnosis and the high incidence of rupture of interventricular septal aneurysms with subsequent development of ventricular septal defect. Indeed,

ventricular septal defect was found in nineteen of his twenty cases.

Shumway<sup>21</sup> reported ten patients with aneurysm of the posterior and inferior ventricular wall. Six of these aneurysms were false, (pseudoaneurysm); four were true aneurysms.

A true aneurysm of the left ventricle may be defined as a transmural replacement of the myocardial wall with fibrous tissue; except for scattered islands of myocardium. A true aneurysm is indeed an extension of the left ventricular chamber without a circumscribed neck. A false ventricular aneurysm has a wall of fibrotic epipericardium that contains no myocardial tissue. The small circumscribed neck or communication between the true left ventricular chamber and the false aneurysm is present. A false aneurysm is in reality a contained rupture of the left ventricle. Following infarction, blood may dissect through the necrotic muscle, or the myocardium may rupture. This transmural perforation of the myocardium is contained by the pericardium with subsequent development of a false aneurysm. Aneurysms of the inferior wall of the heart are rare. False aneurysms of the heart are extremely rare. False aneurysms are more commonly found on the inferior and posterior wall of the heart. Because of their pathogenesis, false aneurysms retain a propensity to rupture. Accordingly, when the diagnosis of posterior or inferior ventricular aneurysms is made, one must consider the possibility of false aneurysm and resection would seem indicated because of the possibility of subsequent rupture.

### Summary

Sixty-nine patients undergoing left ventricular aneurysm resection are reported. Diagnosis was made by cineventriculography. Indications for surgery were congestive heart failure, angina pectoris, arterial embolization and ventricular arrhythmias. Approximately ninety percent of these patients had coronary bypass grafts and/or cardiac valve replacement done at the time of left ventricular aneurysm resection.

Critical points in operative techniques include resection of the entire aneurysm, myocardial protection and effective myocardial revascularization. Hemodynamically significant mitral valve incompetence should be corrected by valve replacement. The operative mortality was 7.2%.

The surgery for control of ventricular tachyarrhythmias is still in its infancy. There is an alarming incidence of persistent ventricular arrhythmias following undirected resection of left ventricular aneurysm. Perhaps electrophysiological mapping procedures will prove to be of lasting benefit. Only those patients with medically uncontrollable ventricular arrhythmias should undergo surgery.

Resection of left ventricular aneurysm combined with effective myocardial revascularization and cardiac replacement can be offered with an acceptable risk to patients with an otherwise dismal prognosis.



## References

1. Swan HJ, et al: Aneurysm of the cardiac ventricle. *West J Med* 129:1:26-40, July 1978.
2. Luke FD, Effler DB, Navia JA, Sheldon WC, Groves LK: Aneurysms of the left ventricle: Survival and results of a ten year surgical experience. *Ann Surg.* 178:399-405, 1973.
3. Effler DB: Post infarction ventricular aneurysmectomy. Surgical technique. *Surg Clin N Am.* 55:5:1159-66, October 1975.
4. Austin J: Venous return during coronary artery surgery. *Clin Dig.* Vol. 10 #2, June 1980.
5. Hunter J: An account of the dissection of morbid bodies. A Monogr or Lect #32 1757 30-32 (Available in Library of Royal College of Surgeons).
6. Beck CS: Operation for aneurysm of the heart. *Ann Surg.* 120:34-40, 1944.
7. Bailey CP, Bolton HE, Nichols H, Gilman RA: Ventriculoplasty for Cardiac Aneurysm. *J Thorac Surg.* 35:37-67, 1958.
8. Cooley DA, Henly WS, Amad KH, et al: Ventricular aneurysm after myocardial infarction, surgical excision with use of temporary cardiopulmonary bypass. *JAMA* 167:557-560, 1958.
9. Najafi H, et al: Current surgical management of left ventricular aneurysm. *Arch Surg* 119(8):1027-1030, 1975.
10. Burton NA, Stinson EB, Oyer PE, Shumway NE: Left ventricular aneurysm, pre-operative risk factors and long term post-operative results. *J Thorac Cardiovas Surg.* 77(1):65-75, 1979.
11. Sami M, Chaitman BR, Bourassa MG, Charpin D, Chabot M: Long term follow-up of aneurysmectomy for recurrent ventricular tachycardia or fibrillation. *Am Heart J* 96:3:303-308, 1978.
12. Wasserman E, Yules J: Cardiac aneurysm with ventricular tachycardia: Case report and brief review of literature. *Ann Intern Med.* 39:948-956, 1965.
13. Dubnow MH, Burchell HB, Titus JL: Post-infarction ventricular aneurysm: A clinicomorphologic and electrocardiographic study of eighty cases. *Am Heart J* 70:753-760, 1965.
14. Favaloro RG, Effler DB, Groves LK, et al: Ventricular aneurysm — clinical experience. *Ann Thorac Surg.* 6:277-245, 1968.
15. Thind GS, Blakemore WS, Zinsser HF: Ventricular aneurysm for the treatment of recurrent tachyarrhythmia. *Am J Cardio* 27:690-694, 1971.
16. Basta L, Takeshita A, Theilen EO, et al: Aneurysmectomy and the treatment of ventricular and supraventricular tachyarrhythmias in patients with post-infarction and traumatic ventricular aneurysms. *Am J Cardio.* 32:693-699, 1973.
17. Josephson ME, Horowitz LN, Spillman SR, et al: Comparison of endocardial catheter mapping with intraoperative mapping of ventricular tachycardia. *Circulation* 2:395-404, 1980.
18. Guiraudon G, Fontaine G, Frank R, et al: Encircling endocardial ventriculotomy: A new surgical treatment for life threatening ventricular tachycardias resistant to medical treatment following myocardial infarction. *Ann Thorac Surg.* 26:438-444, 1978.
19. Rozanski J., Castellanos A, Vargas A, et al: Letter to Editor: Ventricular Resection for Recurrent Ventricular Tachycardia. *N Engl J Med.* 303:339, 1980.
20. Mirowski M, Reid P, Mower M, et al: Termination of malignant ventricular arrhythmias with an implanted automatic defibrillator in human beings. *N Engl J Med.* 303:322, 1980.
21. Buehler DL, Stinson EB, Oyer PE, Shumway NE: Surgical treatment of aneurysms of the inferior left ventricular wall. *J Thorac Cardiovasc Surg.* 78:#1:74-78, 1979.
22. Loop FD, Effler DB, Webster JS, Groves LK: Posterior ventricular aneurysms. *N Engl J Med* 288:237-239, 1973.
23. Wang CH, Bland EF, White PD: A note on coronary occlusion and myocardial infarction found post-mortem at the Massachusetts General Hospital during the twenty year period from 1926 to 1945 inclusive. *Ann Intern Med* 29:601-606, 1948.
24. Schlichter J, Hellerstien HK, Katz LN: Aneurysm of the heart: A correlative study of 102 proved cases. *Medicine* 33:43-86, 1954.
25. Wartman WB, Hellerstein HK: The incidents of heart disease in 2,000 consecutive autopsies. *Ann Intern Med.* 28:41-64, 1948.
26. d'Allaines C, Blondeau P, Piwnica A, Farge C, Dubost C: Surgical treatment of aneurysms of the membranous interventricular septum: A case study of 20 operations. *J Cardiovasc Surg (Torino).* 20:3:211-216, May-June 1979 Ver: Cim 20:7719, 1979.

## Editorial Comment

Kenneth B. Desser, M.D.

Medical students are often surprised to learn that the least common complication of true left ventricular aneurysm is myocardial rupture. Most aneurysmectomies are performed because of other complications such as recurrent angina pectoris, refractory congestive heart failure, systemic embolism, mitral regurgitation and demonstration of large mural thrombi. The vast majority of left ventricular aneurysms are poorly detected by physical examination of the heart. Frequently described signs include an ectopic precordial bulge, unusual midsystolic sounds, diastolic murmurs, presistent pericardial friction rubs, paradoxical splitting of the second heart sound, large palpable "a" waves, sustained ventricular heaves and bifid apical impulses. The most commonly appreciated findings are third and fourth heart sounds in association with the murmur of papillary muscle dysfunction. Unfortunately there is no *typical* murmur which designates papillary muscle dysfunction and the latter condition is usually manifested during midsystole. There is some divergence of opinion regarding the mitral regurgitation associated with ventricular aneurysm. During left ventricular systole, that portion of the papillary muscle adjacent to the aneurysm may not move toward the interior of the ventricle. In the latter setting the attached chordae and mitral leaflet are retracted toward the apex thereby precluding valvular coaptation and resulting in mitral incompetence. Another possibility is mitral valve prolapse arising as a consequence of disorganized left ventricular contraction.

In general, left ventricular dysynergy is classified as follows: akinesis - lack of wall motion, hypokinesis - sluggish inward wall motion and dyskinesis - paradoxical systolic wall motion. Left ventricular dyskinesis should *not* be equated with aneurysm formation. Dyskinetic left ventricular wall segments are manifested by bulges noted during systole yet the ventricle approximates its usual configuration during diastole. In contrast, true left ventricular aneurysms result in appreciable bulging during systole and diastole. The development of radionuclide left ventriculography and real time two dimensional echocardiography has provided the clinician with two technics with little or no associated morbidity for the detection of left ventricular aneurysm. Late generation computerized tomographic devices are currently being investigated as ancillary methods for diagnosis.

*Supported by the Biomedical Research Memorial Fund, Inc.*



*Seminars in  
Gastroenterology  
and Liver Disease*

## Adult Shunt Ascites

Volker K. H. Sonntag, M.D.  
John J. Kelly, M.D.

Editors:

George Burdick, M.D.  
Stephen Glouberman, M.D.  
Steven R. Kanner, M.D.

### Abstract

Three adult males who were treated previously with a ventriculoperitoneal shunt for hydrocephalus presented with ascites. All three eventually had revision of the ventriculoperitoneal shunt to a ventriculoatrial shunt with resolution of their ascites. Non-absorption of cerebral spinal fluid, secondary to a ventriculoperitoneal shunt, should be considered in the differential diagnosis of abdominal ascites in the adult.

### Introduction

The peritoneal cavity has been used as the site for the secondary absorption of cerebrospinal fluid since initial attempts of internal shunting in children with hydrocephalus were undertaken in the late 19th century. Increase in the use of peritoneal systems has resulted in a number of intra-abdominal complications other than ordinary shunt obstruction or wound

infection, both of which require removal of the peritoneal catheter. Intraperitoneal complications of ventriculoperitoneal shunts are listed in Table 1.

Complications following ventriculoperitoneal shunting are relatively common, being reported to occur in as many as 24% of the cases.<sup>1</sup> Ascites secondary to ventriculoperitoneal shunt has been recorded in less than nine instances to date and primarily in children.<sup>2-9</sup> Only one previous case of ascites complicating a ventriculoperitoneal shunt has been reported in the adult. This patient (Case No. 1 in this report) was reported in 1976 by Cummings, Sonntag and Scott.<sup>10</sup> Two additional cases are presented in the present report.

### Report of Cases

**Case No. 1:** The first patient is a 53-year-old male, who had been admitted fourteen years previously, complaining of headaches, nausea, vomiting, disturbance of balance and episodes of loss of consciousness. A diagnostic evaluation revealed hydrocephalus, without evidence of a mass lesion, and ventriculography was diagnostic of aqueductal stenosis. A Torkildsen shunt was placed, which relieved the

From: Barrow Neurological Institute, 302 West Thomas Road, Phoenix, Arizona 85013. Reprint requests to: Volker K. H. Sonntag, M.D., 222 West Thomas Road, No. 201, Phoenix, Arizona 85013. This paper was presented at the Annual Meeting of the Arizona Medical Association, April 23-27, 1980.



**Table 1**  
**Abdominal Complications of**  
**Ventricular Peritoneal Shunt**

|                                      |
|--------------------------------------|
| Abdominal Wall Perforations          |
| Ascites                              |
| Cerebrospinal Fluid Fistula          |
| Hernia, Hydrocele, Scrotal Extrusion |
| Ileus                                |
| Intramuscular Cyst                   |
| Intussusception                      |
| Peritonitis                          |
| Pseudocyst                           |
| Pseudotumor                          |
| Vaginal Perforation                  |
| Perforation of Viscus                |
| Volvulus                             |

patient's symptoms. The patient subsequently had multiple shunt revisions, first to a ventriculojugular, then to a ventriculoperitoneal, then to ventriculopleural and then again to a ventriculoperitoneal shunt. After the last revision the patient did well for the next eighteen months. Two months prior to his last admission, the patient noted increased abdominal girth. Physical examination revealed a distended abdomen, with shifting dullness, and a demonstrable fluid wave. The shunt was thought to be functioning well. The valve emptied and refilled promptly, and radioactive Technetium injected into the shunt promptly flowed into the abdominal cavity; no loculated peritoneal cyst was demonstrated. The patient had no history of alcoholic indiscretion. Complete liver and renal function tests were normal, as were liver-spleen scan, EKG, and roentgenogram of the chest. An ultrasound study of the abdomen was consistent with free fluid, without evidence of loculation. A peritoneal tap revealed clear, xanthochromic fluid with a protein of 1100 mg% and a sugar of 122 mg%; cytology and culture were negative. The shunt was changed to a ventriculoatrial shunt. At operation, a small amount of clear fluid could be withdrawn from the abdominal cavity. Following the operation, the patient's abdominal girth rapidly diminished, and his abdominal discomfort disappeared.

**Case No. 2:** This 51-year-old, right-handed white male presented with a subarachnoid hemorrhage in January of 1979. Diagnostic studies revealed an anterior communicating artery aneurysm, which was eventually clipped in February of 1979. The patient was discharged to an extended rehabilitation facility, where he improved for the next two months only to plateau. At that time, the patient has slowness in mentation and complained of some headaches. He also had difficulty with gait and incontinence. Computerized axial tomography was consistent with hydrocephalus. Subsequently, the patient had the insertion of a ventriculoperitoneal shunt in June of 1979. The patient was discharged home, only to return in late August, with abdominal discomfort, distention and headaches.

The patient has had no history of any abdominal surgery except the previous ventriculoperitoneal shunt. He has no history of any abdominal infections, liver disease or alcohol ingestion. An upper gastrointestinal study, a barium enema, sigmoidoscopy and a cholecystogram were within normal limits. An ultrasound sonogram of the abdomen revealed prominent nonloculated fluid. Percutaneous aspiration of the fluid was carried out and this revealed 4,800 mg% protein and 107 mg% glucose. Culture was negative. On September 11, 1979, the patient underwent revision of his shunt from a ventriculoperitoneal shunt to a ventriculoatrial shunt, with immediate resolution of the increased abdominal girth and discomfort. The patient was discharged home one and a half weeks later with a normal abdomen, decreasing incontinence, and resolution of his headaches.

**Case No. 3:** This 70-year-old white male presented at the beginning of July 1979 with headaches, lethargy and anorexia. An appropriate workup was instituted and the patient was found to have a medial sphenoid wing meningioma of the right side. The patient also had hydrocephalus, which was treated with a bilateral ventriculoperitoneal shunt on July 9, 1979. On September 4, 1979, the patient presented to the Emergency Room with signs and symptoms of an acute abdomen. Physical examination at that time revealed the patient to be lethargic and to have an increased abdominal girth. Emergency laparotomy was carried out, at which time a modest to fair amount of fluid was encountered, as well as signs of peritoneal inflammation. An incidental appendectomy was carried out; there was no evidence of any ruptured viscus, and the remainder of the intra-abdominal contents including the liver was normal. Culture and sensitivity of the fluid grew out staphylococcus coagulase negative. The patient was placed on the appropriate antibiotics. Postoperatively, the abdominal girth continued to increase, however, consistent with fluid accumulation. Ten days after the laparotomy, the ventriculoperitoneal shunt was changed to a ventriculoatrial shunt. Postoperatively, the patient's abdominal girth decreased to normal in approximately 3-4 days. The patient's course has remained benign since the revision of the shunt.

Past history revealed that this patient had no previous abdominal surgery prior to placement of the ventriculoperitoneal shunt. He also had no previous history of any liver disease and there was no history of alcoholism.

#### Discussion

Ascites, an accumulation of fluid within the peritoneal cavity, is not a diagnosis, but rather a sign of disease. Although it is usually secondary to cirrhosis or cancer, differential diagnosis includes many other causes. (Table 2) The diagnosis of ascites is usually made by the percussion findings of shifting dullness, a positive fluid

**Table 2**  
**Causes of Ascites**

|                                                                |
|----------------------------------------------------------------|
| Cirrhosis                                                      |
| Carcinomatosis                                                 |
| Tuberculosis                                                   |
| Heart Disease (Congestive Heart Failure, Pericarditis)         |
| Hepatoma                                                       |
| Bacterial Peritonitis                                          |
| Pancreatic Disease                                             |
| Bile Leakage                                                   |
| Myxedema                                                       |
| Miscellaneous (chronic renal disease, uteroperitoneal fistula) |
| Ventriculoperitoneal Shunt                                     |

**Table 3**  
**Possible Etiology of Shunt Ascites**

|                                                                  |
|------------------------------------------------------------------|
| Peritonitis <sup>6,7</sup>                                       |
| Previous Abdominal Surgery <sup>13</sup>                         |
| Infected Shunt <sup>o</sup>                                      |
| Chronic irritation of the peritoneum <sup>8</sup>                |
| Antigen-antibody response after D.P.T. Immunization <sup>3</sup> |
| Lymphatic Obstruction. <sup>9</sup>                              |

wave, and flank dullness; this requires at least 500 cc of fluid. Other techniques may be useful in determining if ascites is present. With fluid accumulation of 800 to 1,000 cc, roentgenography may show abdominal haziness, loss of psoas muscle shadows, separation and floating of bowel loops, obliteration of the hepatic angle, and medial displacement of the colon from the extraperitoneal fat line with subsequent widening of the flank stripe.<sup>11</sup> Other conditions which must be differentiated from ascites are abdominal cysts, distention of the bladder or bowel, obesity, pregnancy, lumbar lordosis and abdominal tumors.<sup>12</sup> Paracentesis and inspection of the fluid usually aid in determining the etiology of the ascites.

In two of our three patients (Cases 1 and 2), the fluid obtained from the abdomen prior to shunting showed an increased amount of protein, with glucose at 197 mg% and 122 mg%. Cytology and culture were negative in these two cases. White cell count in Case 2 was 990 with 14% lymphs, 2% eosinophiles and 84% polys. In the third case the fluid obtained at the time of laparotomy grew out staphylococcus, coagulase negative.

Various etiologies have been proposed as the cause of the nonabsorption in the peritoneum of the CSF. (Table 3) Dean and Keller<sup>3</sup> speculated that the peritoneal malabsorption was due to an antigen-antibody response, after routine diphtheria-pertussis-tetanus immunization. Rosenthal et al,<sup>8</sup> theorized chronic inflammation with adhesion formation. Weideman<sup>9</sup> speculates that a lymphatic obstruction caused diminished return of the fluid to the vascular compartment and consequently the formation of CSF ascites. Another possible cause may have been decreased peritoneal absorption secondary to chronic peritoneal

inflammation, as in our third case.<sup>6,7</sup> Fisher and Shillito<sup>13</sup> speculate that the fluid accumulation might be due to previous abdominal surgery aside from the ventriculoperitoneal shunt. Of the three patients reported here, the first patient had several previous ventriculoperitoneal shunts, that is, abdominal surgeries. The second had no previous abdominal surgery except for the ventriculoperitoneal shunt, or any other factor mentioned above which has been theorized as causing decreased absorption of CSF fluid. The third patient had a low-grade peritonitis, which was probably the cause of the nonabsorption of the CSF fluid in the abdomen.

### Summary

Three adult males were reported who developed cerebrospinal fluid ascites secondary to the placement of a ventriculoperitoneal shunt. One patient had previous abdominal surgery and a second patient had a low-grade peritonitis. In the third, no obvious cause for the nonabsorption could be found. Various explanations have been given why the fluid is not absorbed, including previous surgery, infection, antigen-antibody response, and lack of lymphatic drainage.

In a patient with a ventriculoperitoneal shunt, increasing abdominal girth associated with a mass or fluid wave, one should consider the possibility of cerebrospinal fluid ascites. A diagnosis can be made by examination, ultrasound and paracentesis. If the cerebrospinal fluid ascites does not spontaneously resolve, treatment requires repositioning of the shunt tube in some absorption site other than the peritoneum.

### References

1. Grosfeld JL, Cooney DR, Smith J, Campbell RI: Intra-abdominal complications following ventriculoperitoneal shunt procedures. *Pediatrics* 54:791-796, 1974.
2. Ames RH: Ventriculo-peritoneal shunts in the management of hydrocephalus. *J Neurosurg.* 27:525-529.
3. Dean DF, Keller IB: Cerebrospinal fluid ascites, a complication of ventriculoperitoneal shunt. *J Neurol Neurosurg Psychiat.* 35:474-476, 1972.
4. Lees RF, Harrison RB, Shaffer, Jr. HA, Hamby LP: Cerebrospinal fluid ascites. *J Can Assn Rad* 29:132-133, 1978.
5. Little JR, Rhoton AL, Mellager DF: Comparison of ventriculo-peritoneal and ventriculo-atrial shunts for hydrocephalus in children. *Mayo Clin Proc.* 47:396-401, 1972.
6. Odeku EL, Antia AU, Udekwu FAO: Persistent ascites following infected ventriculo-peritoneal shunt. *W Afr Med J.* 19:72-73, 1970.
7. Parry SW, Schumacher JF, Llewellyn RL: Abdominal pseudocysts and ascites formation after ventriculo-peritoneal shunt procedures. Report of four cases. *J Neurosurg.* 43:476-480, 1975.
8. Rosenthal JD, Golden GT, Shaw CA, Jame JA: Intractable ascites: A complication of ventriculoperitoneal shunting with a silastic catheter. *AM J Surg.* 127:613-615, 1974.
9. Weidman MJ: Ascites from a ventriculo-peritoneal shunt. Case Report. *J Neurosurg* 43:233-235, 1975.
10. Cummings J, Sonntag VKH, Scott RM: Ascites complicating ventriculo-peritoneal shunting in an adult. *Surg Neurol* 6:135-136, 1976.
11. Keefe EG, Gagliardi RA, Pfister RD: The roentgenographic evaluation of ascites. *Am J Roentgenol Radium Ther Neucl Med* 101: 388-396, 1967.
12. Rigberg LA: Ascites. *Arizona Medicine.* 37:83, 1980.
13. Fischer EG, Shillito J: Large abdominal cysts: A complication of peritoneal shunts. *J Neurosurg.* 31:441-444, 1969.



# Marfan Syndrome and Similar Genetic Disorders

## The Marfan Syndrome

Frederick Hecht, M.D.

Editor:  
Frederick Hecht, M.D.

### Abstract

The Marfan syndrome classically presents a triad of findings involving the skeleton, eye and aorta. Patients with Marfan syndrome often show great clinical variability, although they may lack one or more of the major findings. Marfan syndrome is not always easy to diagnose.

The myriad findings in Marfan syndrome reflect its pleomorphism: many manifestations arise from one gene. This is typical of autosomal dominant disorders.

Life expectancy in Marfan syndrome is halved, due to cardiovascular lesions. Patients with little or no aortic dilatation can be given beta-blockers to delay aortic aneurysms. In patients with mild to moderate aortic disease, elective prophylactic surgery of the aorta improves the lifespan.

Abraham Lincoln is thought to have had Marfan syndrome. This retrospective diagnosis is, of course, impossible to prove and may well be incorrect, but it is useful in remembering the usual appearance associated with Marfan syndrome.

### Classical Triad

The classical picture of the Marfan patient, indeed, resembles Mr. Lincoln. The patient may or may not be tall, but is lanky, the hands appear long, and so do the feet. Fingers and toes are especially long and slender;

they fit the term "arachnodactyly" (spiderlike). The overall *skeletal* picture may be present at birth and constitutes one element in the classic Marfan triad.

The second element in the triad of Marfan syndrome involves the *eye*. Many patients have myopia. Because of weakness in suspensory ligaments, the lens may be loose and shimmer. If the ligaments are very loose, the lens may dislocate. The eye findings are often not present at birth, but develop with time.

The third element in the Marfan triad affects the *aorta*. The aorta may show aneurysmal dilatation and later dissection and rupture. This problem will be described in more detail.

### Clinical Variability

The classical triad of skeletal, eye and aortic findings is found much more frequently in textbooks than in real life. Numerous patients show broad variability in clinical expression.<sup>1</sup>

Donaldson, et al<sup>2</sup> found, in a series of fifty-nine patients ranging in age 13 to 62 years, that clinical variability was evident. For example, only thirty-eight of fifty-nine patients (64%) had the skeletal stigmata with arachnodactyly, high-arched palate, chest deformity (pectus excavatum or carinatum) and long arms with armspan greater than height.

Another sign of the Marfan syndrome is the "thumb sign." When the fist is clenched over the thumb, the end of the thumb protrudes past the ulnar side of the hand. This reflects the length of the thumb and especially the

From: The Genetics Center of Southwest Biomedical Research Institute, 123 East University Drive Tempe, Arizona 85281.

ligamentous laxity. When the thumb sign is positive, it is diagnostically helpful. Often, however, the sign is absent even in clearcut cases of the Marfan syndrome.

Donaldson et al<sup>2</sup> also found nineteen patients (32%) lacked abnormal eye findings and fourteen (24%) had no classic skeletal or eye features, but presented with cardiovascular problems. Thus, a significant proportion of Marfan patients have a *forme fruste*, that is literally a "frustrated form" of the disease. The Marfan syndrome provides a very *pleomorphic* picture. From one gene, numerous manifestations arise.

### Life Expectancy

The average life expectancy with Marfan syndrome is halved.<sup>3</sup> The decrease in life expectancy is virtually 100% cardiovascular in nature.

### Cardiovascular Pathology

Chest pain or heart failure are common presenting features of advanced Marfan syndrome. The underlying cause of the cardiovascular problem is degeneration of the aorta. Degeneration results in loss of elastic tissue from the media of the aorta. In turn this can cause aneurysms of the ascending aorta, sinuses of Valsalva and aortic valve ring. Weakening of the aortic valve annulus predisposes to aortic regurgitation and to heart failure. A similar process may occur with the mitral valve, particularly in *children* with Marfan syndrome.<sup>4</sup>

The aneurysms often lead to dissection and rupture of the aorta. The histology reveals mucoid cystic lesions. These lesions in the aorta are severe and multiple with interruption of elastic fibrils.<sup>5</sup>

The dramatic cardiovascular phenomena in the Marfan syndrome has led prominent cardiologists such as Victor McKusick at Johns Hopkins University to detour into medical genetics. This syndrome provides a model genetic cardiovascular disease. From another viewpoint it is a model connective tissue disorder.

### Pregnancy

Pregnancy is a perilous time for women with Marfan syndrome. During late pregnancy, labor and delivery, there is a high risk of aortic aneurysm, dissection, rupture and death. This makes for shortened survival of pregnant women and longer survival of nulliparous women and of men with Marfan syndrome.

### Genetic Pattern of Inheritance

The Marfan syndrome is inherited as an autosomal dominant condition. Although the precise location of the Marfan gene is unknown, it is clearly on one of the twenty-two autosomes (the non-sex chromosomes). If a parent has the Marfan gene, the chance for each of their children receiving it is one half (50%). A child with the Marfan gene may have a milder or more severe clinical picture than their parent. The child may have more catastrophic cardiovascular problems or none at all.

This variation in expression is seen typically with autosomal dominant disorders. Variation in expression presumably reflects the action of modifying genes elsewhere in the genome. If the modifying genes are "good" few problems occur. If the modifying genes are

"bad" they contribute to more severe disease. Environmental factors, such as pregnancy, also contribute to the severity of the disease. No gene acts in a vacuum.

### Medical Genetic Family Studies

Genes of an autosomal nature, such as the Marfan gene, would be expected to describe a typical vertical pattern from grandparent to parent to child. However, in patients with the Marfan syndrome there often is no family history of the disease. In one series,<sup>2</sup> for example, 29 of the 59 patients (49%) had no family history of the Marfan syndrome. Possible explanations for this include: 1) new mutations (although mutations are rare events), 2) non-paternity, where the putative father is not the genetic father, (this is generally confined in the general population to about 5% of children, not enough to account, by any means, for close to 50% of Marfan's patients having no family history of the disease), and 3) variations in the expression of the disease. Variability in expression is the usual reason for the deceptive lack of a family history.

A genetic family study is recommended whenever Marfan syndrome is suspected. The study should include a detailed family history in pedigree form, physical examination of all relatives at risk and perusal of medical records and autopsy reports. The physical examination should include a check for skeletal findings with segmental measurement of height (crown-to-pubis and pubis-to-heel), armspan, meticulous eye exam and appropriate cardiovascular studies: routine chest films, electrocardiogram and echocardiography. Selective coronary arteriograms should be done only in symptomatic patients. Blood pressure measurements in arms and legs are absolutely essential. Once a relative is detected with Marfan syndrome, that person should be followed closely, at three to six month intervals. Problems may occur in the Marfan patient at any time.

### Medical Treatment

An advance in the medical treatment of Marfan syndrome has been the use of beta-blockers.<sup>6</sup> The rationale is to improve cardiac efficiency and reduce the chance of an aortic aneurysm. Beta-blockers are appropriate for patients with minimal and mild aortic disease. They are not sufficient for a patient with advanced aneurysms of the aorta or dissection of the aorta. For such patients surgery is needed.

### Surgical Treatment

In the past surgery was withheld until acute dissection was underway. The results were predictable; the patient did not leave the hospital alive. Now earlier surgery is advised. In fifty-three cases of *elective* surgery plus six cases of emergency surgery<sup>2</sup> (for acute dissection), the six-year survival was 78%. With improvements in cardiovascular surgery, the survival percentage is increasing.

In particular, echocardiography of the aortic root has improved diagnosis of aortic and related complications. If echo assessment reveals a large dilating aorta and



evidence of ventricular dilatation, even in a symptom-free patient, they should have early prophylactic surgery.

At present, the surgery of choice involves insertion of a woven synthetic ascending aortic segment with a prosthetic or tissue valve sewn in. The coronary arteries are anastomosed to the proximal portion of the graft and the aorta is sewn around the distal end of the graft. The details of these operative procedures have been described in detail.<sup>7</sup> Careful long-term follow-up is crucial, since late problems and recurrence of aortic disease may occur. The use of early prophylactic surgery in selected cases appears highly promising.

#### Good Care

Marfan syndrome is a chronic disease. As with other chronic diseases, good general care should be provided. Communication is especially important, and genetic counseling of all Marfan syndrome families is recommended. Although genetic counseling is classically nondirective, a case can clearly be made for advising women with Marfan syndrome *not* to become pregnant, since pregnancy increases the risk of death at an early age.

The diagnosis of Marfan syndrome should be made with care, since the diagnosis is a potential death sentence. The corresponding challenge, once the diagnosis has been made, is to help the patient live a long and useful life.

#### Birth Defects Information Service

The Genetics Center, with the assistance of the National Foundation/March of Dimes, is now directly on-line with the computer of the Birth Defects Information System, developed jointly by the Massachusetts Institute of Technology and Tufts New England Medical Center in Boston. The latest information on many diseases determined before birth can be accessed through this computer link. Diseases on the computer include genetic and environmental disorders affecting children and adults. Full information from the computer will be provided to any physician, nurse or qualified health professional in Arizona. The service is free. For information, write or call 894-1104 to Frederick Hecht, M.D. or James D. Cadien, Ph.D. at The Genetics Center, 123 East University Drive, Tempe, Arizona 85281.

#### References

1. Pyeritz RE, Murphy EA, McKusick VA: Clinical variability in the Marfan syndrome (s). *Birth Defects Org Art Ser.* 15(5B):155-178, 1979.
2. Donaldson RM, Emanuel RW, Olson EGJ, Ross DN: Management of cardiovascular complications in Marfan syndrome. *Lancet.* 2:1178-1181, 1980.
3. Mudoch JL, Walker BA, Halpen BL, Kuzma JW, McKusick VA: Life expectancy and causes of death in the Marfan syndrome. *N Engl J Med.* 286:804-808, 1972.
4. Phornphutkol C, Rosenthal A, Nadas AS: Cardiac manifestations of Marfan syndrome in infancy and childhood. *Circulation.* 47:587-596, 1973.
5. Keene RJ, Steiner RE, Olson EGJ, Oakley C: Aorta root aneurysm: Radiographic and pathologic features. *Clin Radiol.* 22:330-340, 1971.
6. Ose L, McKusick VA: Prophylactic use of propranolol in the Marfan syndrome to prevent aortic disease. *Birth Defects Org Art Ser.* 13(3C):163-169, 1977.
7. Gallotti R, Ross DN: The Marfan syndrome: Surgical technique and follow-up in 50 patients. *Ann Thorac Surg.* 29:428-433, 1980.



*Obstetrics  
and Gynecology*

## Delivery of Premature Infants

### Tri-Hospital Perinatal Mortality Conference

Editors:

Walter B. Cherny, M.D.

Byron C. Butler, M.D.

At the December 1980 Tri-Hospital Perinatal Mortality meeting, discussion focused on methods to reduce hypoxia and brain trauma during the labor and delivery of premature babies, especially those who weigh under 1000 gms.

The information and recommendations which follow were developed because of their importance to all individuals who deliver premature babies.

#### Information

1. Most premature babies weighing under 1000 gms. (2 lbs. 4 oz.) at birth who die, often have a cranial intraventricular hemorrhage. Recent ultrasound studies have shown these hemorrhages may appear as early as the first four to six hours of life.

2. Two common antecedent events to intraventricular hemorrhage in the newborn are:

- a. Intrauterine hypoxia
- b. Increased intracranial pressure

3. Overall survival of these infants in Arizona appears to be 24% to 35%.

#### Recommendations

1. Prevention of sustained intrauterine hypoxia
  - a. Early detection of fetal distress with continuing electronic fetal heart monitoring.
  - b. Appropriate use of tocolytic drugs (Ritodrine, Terbutaline) to try to stop undesired uterine contractions.

From: Good Samaritan Hospital, Department of Obstetrics and Gynecology, 1033 East McDowell Road, Phoenix, Arizona 85006

c. Avoid rupture of the membranes if possible. The loss of amniotic fluid increases the chance of umbilical cord compression and fetal hypoxia.

d. Keep the mother in the left lateral position to attain maximum uterine blood flow.

e. Consider oxygen administration to the mother during premature labor. The value of this measure is not clearly established, but is generally thought to be useful.

f. If fetal distress develops, immediate Cesarean Section is urged by some, though not by others.

2. Prevention of increased intracranial pressure.

a. Avoid rupture of the membranes.

b. Avoid the use of oxytocin.

c. Use of epidural or low spinal/saddle anesthesia to

reduce tone of the levator and perineal muscles.

d. Make the episiotomy early enough and large enough to reduce compression of the head at the perineum.

e. Use outlet forceps to shorten the second stage of labor, if necessary. Traction should be used sparingly.

f. Control and deliver the head slowly.

g. Prematures in breech presentation, or those in distress, may benefit by Cesarean Section, but this should be counterbalanced by a consideration of the maternal risks.

h. If the lower uterine segment is not yet well developed, as seen at the time of surgery, the incision should probably be vertical, and low in the uterus.



## *Oncology*

## **Pediatric Solid Tumors II: Rhabdomyosarcoma**

Terry S. Wood, M.D.  
John J. Hutter, Jr., M.D.

Editors:  
David S. Alberts, M.D.  
Ellen M. Chase, B.S.

Rhabdomyosarcoma is the most common soft tissue sarcoma in children. It represents between 5% and 15% of all malignant solid tumors in children<sup>1</sup> and 4%-8% of all malignant diseases in children under 15 years of age. The peak incidence of childhood rhabdomyosarcoma occurs between the ages of two and five years,<sup>1</sup> with approximately 70% of the cases occurring in patients less than 10 years of age. It is more common in males than females (male:female ratio, 1.4:1).<sup>2</sup> Rhabdomyosarcoma is the most common primary malignant tumor of the orbit, middle ear, nasopharynx, lower genitourinary tract, and soft tissues of the extremities in the pediatric age group. Other potential areas of initial presentation include the oropharynx, neck, retroperitoneum, abdominal cavity, and miscellaneous other sites. The distribution of patients in the first Intergroup Rhabdomyosarcoma Study (IRS) according to site was as follows: Head and neck, 29%; extremities, 23%

From: St. Joseph's Hospital and Medical Center, 350 West Thomas Road, Phoenix, Arizona 85013 and The University of Arizona Health Sciences Center, Tucson, Arizona 85724. Dr. Wood is Associate Director of Medical Education and Consultant in Pediatric Hematology/Oncology at St. Joseph's Hospital, Phoenix. Dr. Hutter is Assistant Professor of Pediatrics, Section of Pediatric Hematology/Oncology, University of Arizona Health Sciences Center, Tucson.



genitourinary, 18%; orbit, 7%; and other sites, 23%.

The most frequent abnormality noted at the time of presentation is a mass. Signs and symptoms are variable and reflect mainly the location of the tumor. For example, children with middle ear rhabdomyosarcoma may develop cranial nerve palsies, particularly of the seventh nerve, while patients with rhabdomyosarcoma of the bladder may have hematuria or evidence of bowel or bladder dysfunction.

### Pathology of Childhood Rhabdomyosarcoma

Rhabdomyosarcoma is a mesenchymal tumor which on occasion has provided difficulty in correct pathologic diagnosis. The presence of skeletal muscle features, such as cross striations, is a helpful parameter, but, in many cases, these may not be numerous (particularly in the embryonal subtype). We would recommend that electron microscopic examination be performed as part of the pathologic evaluation of soft tissue tumors in children, since the ultrastructural features are helpful in establishing the correct diagnosis.<sup>3</sup> Of the several histologic subtypes of rhabdomyosarcoma, the most common in children is embryonal rhabdomyosarcoma. It is found in approximately 60% of patients, and is very common in the head and neck region (including the orbit), as well as in the genitourinary region.<sup>2</sup> Alveolar rhabdomyosarcoma is less common in children and occurs particularly in extremity regions in adolescents. Overall, it accounts for 18% of rhabdomyosarcoma in children. The sarcoma botryoides (grape-like clusters) makes up 7% of all childhood rhabdomyosarcomas. It is usually seen in the genitourinary tract, but it is occasionally found in other regions. In contrast to adults, pleomorphic rhabdomyosarcoma is uncommon in children. It occurs most often in the extremities and the trunk, and it makes up only 2%-3% of all childhood cases. A fifth histologic subtype is indistinguishable from extra-osseous Ewing's sarcoma. A sixth type, designated special undifferentiated cell type, resembles the pattern for large cell Ewing's sarcoma of bone.<sup>2</sup>

Whether there is any prognostic significance to any of the above cell types of rhabdomyosarcoma is unclear. Although the alveolar form has been classically associated with a poorer prognosis than the embryonal form, this may relate to the site of the tumor origin or the age of the patient rather than to the cell type itself.

### Diagnostic Studies, Staging, and Prognosis

In addition to complete history, physical exam, CBC, and urinalysis, other preoperative studies used to classify and stage rhabdomyosarcoma include chest x-ray, skeletal survey, bone scan, liver scan, and bone marrow aspirate and biopsy. Computerized tomography to define the extent of tumor and examination of cerebrospinal fluid (CSF) should be performed in patients with head and neck tumors. Lymphangiography has been useful to define disease in patients with subdiaphragmatic rhabdomyosarcoma, particularly tumors involving the lower extremities.<sup>4</sup> Table 1 outlines the IRS staging system.

Table 1  
Intergroup Rhabdomyosarcoma Study  
Staging System

#### Group I

Localized disease, completely resected

- a) confined to muscle or organ of origin
- b) contiguous involvement — infiltration outside the muscle or organ of origin, as through fascial planes

#### Group II

- a) Grossly resected tumor with microscopic residual disease
- b) Regional disease with involved nodes, grossly resected, but with evidence of microscopic disease

#### Group III

Incomplete resection or biopsy with gross residual disease

#### Group IV

Metastatic disease present at onset

Improved ultrasonography techniques provide a non-invasive method for diagnosis of primary or metastatic disease, particularly within the abdomen. This analysis also provides a means for safe and simple follow-up. Computerized axial tomography has proved to be an excellent means of assessing the central nervous system for evidence of metastatic disease or direct extension of rhabdomyosarcomas of the nasopharynx into the cranial vault.<sup>5</sup> Further application of this methodology to the whole body (body scanners) may prove to be of additional assistance in diagnosis and follow-up of both intra-abdominal tumors and extremity tumors.

It is of particular importance to carefully stage each child with soft tissue sarcoma, because the type and extent of therapy are dependent on the stage of the tumor. One important observation in the approach to staging children with rhabdomyosarcoma is the difference in the incidence of lymph node metastases according to the site of the disease. Children with rhabdomyosarcoma of the genitourinary tract and extremities have a 15%-20% incidence of regional lymph node involvement, while the incidence in head and neck tumors and other sites is 5%-10%.<sup>1</sup> Lymph node involvement is rare in orbital tumors. Consideration should be given to regional node biopsy in the staging of children with extremity or genitourinary rhabdomyosarcoma. In particular, patients with paratesticular rhabdomyosarcoma (who have a 40% incidence of retroperitoneal node involvement) require surgical sampling of the retroperitoneal nodes.<sup>6</sup>

The prognosis for children with rhabdomyosarcoma has some relationship to site of disease. Direct meningeal extension has been observed in 35% of patients whose primary sites are adjacent to the meninges (nasopharynx, paranasal sinus, and middle ear), and 90% with such extension have died of this disease within nine months of the primary diagnosis.<sup>7</sup> In contrast, children with orbital rhabdomyosarcoma have had a lower incidence of both central nervous system involvement and nodal metastases and have a more

favorable prognosis. Patients with extremity lesions also tend to have a more advanced stage of disease at the time of diagnosis than patients with primaries from other sites, with a resultant poor prognosis.

### Therapeutic Considerations

Up until 1970, long-term survival occurred in less than one half of the children with operable soft tissue sarcomas, and children with inoperable or metastatic disease rarely survived. During the last fifteen years, important progress has been made in the management of rhabdomyosarcoma. The major advances have included the following: 1) the development of effective combination chemotherapy;<sup>2,8,9</sup> 2) the observation that rhabdomyosarcoma could be controlled or ablated locally with radiation doses of 5,000-6,000 rads;<sup>10</sup> and 3) the development of coordinated multidisciplinary programs utilizing the combination of surgery, radiation therapy, and chemotherapy.<sup>2,11</sup>

The Intergroup Rhabdomyosarcoma Study (IRS) was initiated in 1972. The following results were obtained in the first study.<sup>2</sup> For Group I disease (localized and completely resected), disease control achieved by vincristine, actinomycin D, and cyclophosphamide given for two years was not enhanced by the administration of postoperative irradiation to the tumor bed. At two years, 90% or more of the patients in both the irradiated and nonirradiated groups exhibited no evidence of disease. Local recurrence rates were less than 6% in both groups.

For children with Group II disease (microscopic residual disease with or without nodal involvement) treated with postoperative radiation therapy, two years of treatment with the three-drug combination of vincristine, actinomycin D, and cyclophosphamide was no more effective than one year of treatment with vincristine plus actinomycin D. At two years from diagnosis, approximately 70% of patients on either treatment had no evidence of disease and approximately 85% were still alive.

For patients with Group III disease (localized sarcoma not treated initially by gross total resection) and those with Group IV disease (metastases present at diagnosis), there was no indication that the addition of adriamycin to intensive treatment with vincristine, actinomycin D, and cyclophosphamide produced better results. Approximately 70% of Group III patients were still alive and 55% of these were in complete remission at two years.

For patients with Group IV disease, only 25% were still alive, with 15% in complete remission — again, regardless of which regimen was used.

As a result of the improvements in response rates and survival in children with rhabdomyosarcoma, attempts are now being directed toward minimizing the side effects of the disease and its treatment. Group I patients have an excellent prognosis, and the current Intergroup Study is evaluating whether these patients can be treated as well with the two-drug combination of

vincristine and actinomycin D as with the three-drug combination of vincristine, actinomycin D, and cyclophosphamide. In patients with pelvic rhabdomyosarcoma, consideration is being given to treatment with chemotherapy initially following biopsy in an attempt to reduce the tumor size and allow for a complete surgical resection with increased organ preservation.<sup>12</sup>

In summary, the multidisciplinary approach of surgery, radiation therapy, and chemotherapy has resulted in an improved outlook for children with rhabdomyosarcoma. More progress is needed, however, in the areas of minimizing the late effects of therapy in patients with localized rhabdomyosarcoma and in improving the therapy for those children who present with widespread disease.

### References

1. Sutow WW, Sullivan MP, Ried HL, et al: Prognosis in childhood rhabdomyosarcoma. *Cancer* 25:1384-1390, 1970.
2. Maurer HM, Moon T, Donaldson M, et al: The Intergroup Rhabdomyosarcoma Study: A Preliminary Report. *Cancer* 40:2015-2026, 1977.
3. Horvat BL, Caines M, Fisher ER: The ultrastructure of rhabdomyosarcoma. *Am J Clin Pathol* 53:555-564, 1970.
4. Bergiron C, Markovits P, Benjaafar M, et al: Lymphography in childhood rhabdomyosarcomas. *Radiology* 133:627-630, 1979.
5. Danziger J, Handel AF, Jing B, Wallace S: Computerized tomography in rhabdomyosarcoma of the head and neck. *Cancer* 44:463-467, 1979.
6. Raney RB, Hays DM, Lawrence W, et al: Paratesticular rhabdomyosarcoma in childhood. *Cancer* 42:729-736, 1978.
7. Tefft M, Fernandez C, Donaldson M, Newton W, Moon TE: Incidence of meningeal involvement by rhabdomyosarcoma of the head and neck in children. *Cancer* 42:253-258, 1978.
8. Heyn RM, Holland R, Newton WA, Jr., et al: The role of combined chemotherapy in the treatment of rhabdomyosarcoma in children. *Cancer* 34:2128-2142, 1974.
9. Wilbur JR: Combination chemotherapy of embryonal rhabdomyosarcoma. *Cancer Chemother Rep* 58:281-284, 1974.
10. Sagerman RH, Tretler P, Ellsworth RM: The treatment of orbital rhabdomyosarcoma of children with primary radiation therapy. *Am J Roentgenol Rad Ther Nuc Med* 114:31-34, 1972.
11. Jaffe N, Filler RM, Farber S, et al: Rhabdomyosarcoma in children. Improved outlook with a multidisciplinary approach. *Am J Surg* 125:482-487, 1973.
12. Hays DM: Pelvic rhabdomyosarcomas in childhood: Diagnosis and concepts of management reviewed. *Cancer* 45:1810-1814, 1980.





## Key Concepts in Identifying the Alcoholic

Thomas E. Bittker, M.D.

Editor:

Thomas E. Bittker, M.D.

When all of the social, economic, health and medical cost consequences are considered, alcoholism is the most costly disease confronting Americans. At least five percent of the adult population are alcoholics. In addition, a substantial number of patients begin their alcoholic careers in early adolescence. The recently recognized fetal alcohol syndrome tragically afflicts a number of children born to alcohol abusing mothers and leaves them mentally retarded and stigmatized for life. Among hospitalized patients, the prevalence of alcoholism ranges from 4% to 10% of women and 15% to 29% of men.<sup>1-3</sup> Violent behavior related to alcohol abuse contributes to 64% of all homicides, 41% of all assaults, 34% of all rapes, 30% of suicides and 60% of child abuse according to the National Council on Alcoholism. The National Safety Council implicates alcohol in approximately one-half of fatal automobile accidents and about one-third of pedestrian-victim fatalities. Major industrial firms have estimated that alcoholic employees lose twenty-two more working days per year than their non-alcoholic counterparts, suffer twice the number of accidents, and have life expectancies shortened by approximately twelve years.<sup>4</sup>

A provocative study, involving family physicians attending a continuing medical education conference at the Mayo Clinic, indicated that although physician respondents were relatively adept in recognizing alcoholism, relatively few were willing to diagnosis the problem and confront it.<sup>5</sup> Our reluctance to diagnose alcoholism fosters the patient's continued self-destructive lifestyle. This reluctance has tragic consequences not only to the patient but to family members and co-workers.

From: 4811 East Seventh Street, Phoenix, Arizona 85014.

The physician participation in the conspiracy surrounding alcoholism denial is particularly unfortunate, given the evidence of treatability of the problem. A recent study surveying twelve alcoholism programs demonstrated the dramatic decrease in medical care utilization, sick days, sickness and accident benefits, following successful engagement and treatment of the alcoholic patient. Reductions in total costs following treatment averaged 40%. The number of sick days fell to an average of 42% and the number of sickness and accident benefits fell to an average of 40%.<sup>6</sup>

Considering the social stigma surrounding alcoholism, the fears of offending patients, and the unfounded despair regarding treatment, a physician's reluctance to screen for alcoholism and to confront the alcoholic patient is understandable. Given the cost of our failure, however, this reluctance is inexcusable.

### Screening Interview for Alcoholism

Robert Morse and Richard Hurt<sup>7</sup> offer four simple screening questions to facilitate the recognition of alcoholism.

1. "Do You Drink?" A patient who denies drinking should then be asked,

2. "Could You Tell Me Why?" It is unusual in this society for a person not to drink. The patient who is not drinking may never have drunk for many reasons or may be a temporarily abstinent problem drinker or alcoholic. For the patient who responds by admitting some alcohol use, our second question should be:

"How Do You Drink?" Note that the interviewer avoids the "why" and thus diminishes the likelihood of a defensive or conformist reply. The open-ended question "how" gives the patient an opportunity to respond more spontaneously.

3. "Have You or Close Family Members ever been Concerned about your Drinking?" A positive response to this question indicates that alcohol is clearly a problem for the patient and warrants further exploration.

4. "Has Drinking ever caused Problems in Your Life?"

Since the publication of their article one year ago, I've employed the Morse and Hurt questions in many clinical situations and can testify to a high degree of acceptance by my patients.

### Criteria for the Diagnoses of Alcoholism

According to the American Psychiatric Association Diagnostic and Statistical Manual - III,<sup>8</sup> the diagnoses of *alcohol abuse* is confirmed by the demonstration of the following symptoms:

1. Continuous or episodic use of alcohol for at least a month.
2. Social complications of alcohol use.
3. Either A or B:
  - A. Psychological dependence.
  - B. Pathological pattern of use.

To be considered *alcohol dependent*, the patient must suffer all of the three symptoms listed above as well as:

4. Either A or B:
  - A. Tolerance.
  - B. Withdrawal.

Alcoholism, then, is not a unitary phenomenon. It is likely to be an emergent disease associated with medical, psychiatric and social deterioration.

*Warning Signs* include:

1. Preoccupation with alcohol.
2. Gulping drinks.
3. Solitary drinking.
4. Using alcohol as a sedative.
5. Secret drinking.
6. Impulsive drinking.
7. Guilt after drinking.
8. Frustrated efforts to obtain control of drinking by periodic abstinence.
9. Social withdrawal.
10. Family Problems.
11. Absenteeism at work.
12. Frequent medical complaints related to alcohol use.

Patients with alcohol problems will have a much higher incidence of the following in their *medical histories*;

1. Accidents.
2. Headaches.
3. Peptic Ulcer Disease.
4. Upper Respiratory Infections and Pneumonia.
5. Tuberculosis.
6. Hepatitis.
7. Pancreatitis.
8. Diabetes.
9. Peripheral Neuritis.

Conspicuous signs of a physical examination include:

1. High blood pressure.
2. Tremor.
3. Muscle wasting.
4. Truncal obesity.
5. Edema.
6. Skin lesions.
7. Loss of vibratory sensation in the extremities.
8. Obvious signs of intoxication including ataxia and dysarthria.

#### **Laboratory Findings in Alcoholism**

1. A blood alcoholism level of greater than 100mg percent in a patient during a general examination.
2. A blood alcoholism level greater than 50 mg percent without signs of intoxication.
3. A blood alcoholism level greater than 300 mg percent any time.
4. An elevated glucose tolerance test or a glucose tolerance test compatible with hypoglycemia.
5. A serum gamma-glutamyl transpeptidase (GGT) value greater than 37 units per liter in the adult male and greater than 24 units per liter for adult female. Among the Morse and Hurt patients<sup>7</sup> the mean level of GGT activity was 120 units per liter, approximately four times normal value. This

enzyme, located in the microsomal hepatic fraction, is abnormal in several hepatocellular diseases, and most alcoholics with abnormal GGT values have hepatocellular necrosis in liver

biopsy specimens. Small to moderate amounts of alcohol do not cause elevations of this enzyme. In the Morse and Hurt's study, increased values of GGT returned to normal more slowly than increased values of SGOT. SGOT levels may be elevated in approximately 50% of alcoholics.<sup>7</sup>

6. Macrocytosis without anemia can be found in roughly one-quarter of the patients.
7. Serum triglyceride levels are elevated in approximately twenty percent.
8. A minority of patients will show elevations in serum alkaline phosphatase, bilirubin, and uric acid.

#### **Confirming the Diagnosis**

The diagnosis of alcoholism is mandated in any of the following situations:

1. Physiological dependence on alcohol as manifested by evidence of withdrawal (tremulousness, hallucinosis, seizures and delirium tremens), or;
2. Tolerance to the effects of alcohol as shown by blood alcohol level of more than 150 mg percent without gross evidence of intoxication or the consumption of one fifth of refined spirits or its equivalent per day, or;
3. Major alcohol-associated illness (for example alcoholic hepatitis, pancreatitis or esophageal varices) in a person who drinks regularly, or;
4. Drinking despite strong medical or social complications.

The patient's subjective complaint of loss of control over his drinking should be considered a probable sign of alcoholism.

#### **Confronting the Patient**

Rather than presenting an accusatory posture, the physician can serve his patient well by summarizing the significant alcohol-related factors in the patient's history, physical examination and laboratory studies, and then confronting the patient with these perceptions. It is helpful to emphasize to the patient that alcoholism is a disease, often genetically related, and is quite treatable if recognized early. The patient's spouse is often a part of the alcoholism conspiracy, but also suffers as a consequence of the alcoholic patient's disease. In many instances both spouses may be implicated by the disease. Whenever possible, a conjoint interview with the spouse is warranted.

Alcoholism patients are best managed by physicians experienced and comfortable in their treatment. A comprehensive treatment program includes:

1. Sobriety.
2. Daily support through such groups as Alcoholics Anonymous.
3. Avoidance of tranquilizers other than during the three to five day withdrawal period.



4. Occasionally, some alcoholics will require in-patient detoxification and treatment.

Alcoholism is the most costly medical problem for adult Americans. It is a very treatable disease assuming early recognition and the involvement of the patient's physician. Recognition is first promoted by carefully interviewing the patient and spouse. It is facilitated by awareness of some of the common alcohol-related disease and laboratory signs. Treatment demands sobriety, group support, continuing medical involvement, and in some instances in-patient care.

#### References

1. Barchha R, Stewart MA, Guze SB: The prevalence of alcoholism among general hospital ward patients. *Am J Psychiatry*. 125:681-684, 1968.
2. Moore RA: The prevalence of alcoholism in a community general hospital. *Am J Psychiatry*. 128:638-639, 1971.
3. Swenson WM, Morse RM: The use of a self-administered alcoholism screening test (SAAST), in a medical center. *Mayo Clin Proc*. 50:204-208, 1975.
4. *Manual on Alcoholism*. American Medical Association, Chicago, 1977.
5. Niven RG: Physicians' perceptions and attitudes toward disabled colleagues. *The Impaired Physician: Proceedings of the Third AMA Conference*. Sept. 29-Oct. 1, 1978, Minneapolis, Minnesota.
6. Jones KR, Vischi TR: Impact of alcohol drug abuse and mental health treatment on medical care utilization. *Medical Care*. 17: 3-13, December 1979. (Supplement).
7. Morse RM, Hurt RD: Screening for alcoholism. *JAMA*. 242 :2688-2690, December 14, 1979.
8. American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*. (Third Edition): DSM III, Washington, D.C., 1980.



## Radiology

### Case of the Month No. 51

Samuel J. Hessel, M.D.  
Gerald H. Becker, M.D.  
Jack O. McFarland, M.D.  
Jonathan M. Levy, M.D.

Editors:  
Jonathan Levy, M.D.  
Gerald Pond, M.D.

A 67 year old man with an illness extending over several months was admitted to the hospital with severe abdominal pain. A computed tomographic (CT) scan was performed (Figure 1).

What is the large mid abdominal mass?

To what structure are the arrows pointing?

What is the mass labelled "C"?

From this single CT image, what diagnoses can you make?

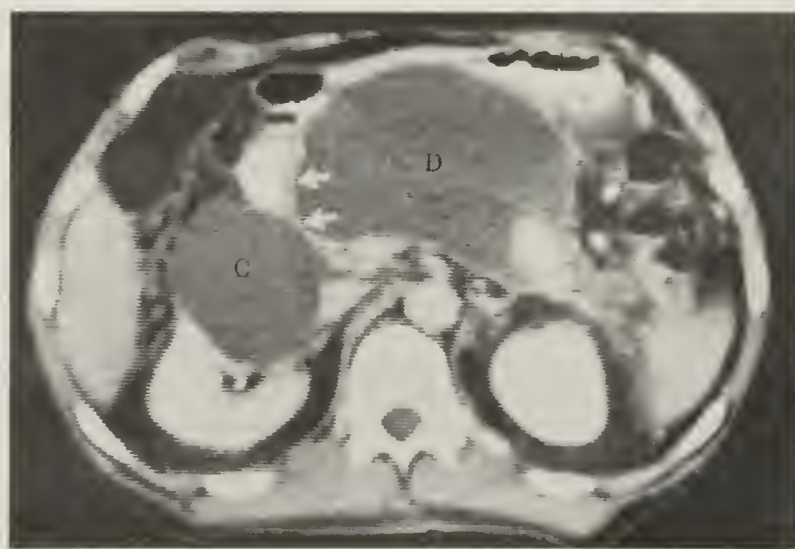


Figure 1

Continued on next page →

From: Departments of Radiology, Medicine and Surgery, Scottsdale Memorial Hospital, 7400 East Osborn Road, Scottsdale, Arizona 85251

## Answer: "Mature" Pancreatic Pseudocyst Incidental Large Right Renal Cyst

Three months prior to this admission, the patient presented with hemorrhagic pancreatitis. A CT scan (Figure 2) showed an enlarged, irregular pancreas (solid arrows) with inflammatory reaction thickening the anterior pararenal and lateral conal fasciae (open arrows). There is an incidental large right renal cyst (C). A follow-up scan two months later showed a pseudocyst of heterogeneous density with a poorly developed wall (Figure 3, arrows). On the current examination (Figure 1) the pseudocyst (D) has enlarged further and now has a well formed, mature wall (arrows). The lesion is "ripe" for drainage.

Until the development of diagnostic ultrasound (US) and CT, the pancreas, lying deep within the retroperitoneum, was resistant to safe, easy and accurate evaluation. A whole host of techniques, non-invasive and invasive, were used in attempts to assess this organ. Today CT and US are the most widely used, effective means of detecting and following pancreatic disease, both focal and diffuse.

Between these two modalities, CT is most often technically successful and accurate. In a recent study of 279 patients who had both CT and US for suspected neoplastic and/or inflammatory pancreatic disease, CT detected 88% and US 59% of pancreatic lesions. In this same group CT called normal 89%, and US 69% of patients with normal pancreases. Problems related to overlying bowel gas, tissue penetration, anatomic sampling and operator/machine variability most likely account for the relatively poorer results with US. Nonetheless, US still plays a role particularly when CT is unavailable and in follow-up of lesions previously defined by either modality.

### References

1. Ferrucci J, Wittenberg J: CT biopsy of abdominal tumors. *Radiology*. 129:739, 1978.
2. Haaga J, Alfidi R: Computed tomographic scanning of the pancreas. *Radiol Clin N A*. 15:367, 1977.
3. Hessel S, Seigelman S, Adams D, et al: Prospective analysis of computed tomography and ultrasound in evaluating the pancreas. Presented at Radiol Soc of N A meeting November 1979.
4. Hushan J, Meire H, Kreel L: Comparison of ultrasound and computer assisted tomography in pancreatic diagnosis. *Brit J Radiol* 50:855, 1977.
5. Lee J, Starck R, Melson G, Sagel S: Pancreatic imaging by ultrasound and computed tomography. *Radiol Clin N A* 16:105, 1979.
6. Sheedy P, Stephens D, Hattery R, et al: Computed tomography of the pancreas. *Radiol Clin N A*. 15:349, 1977.

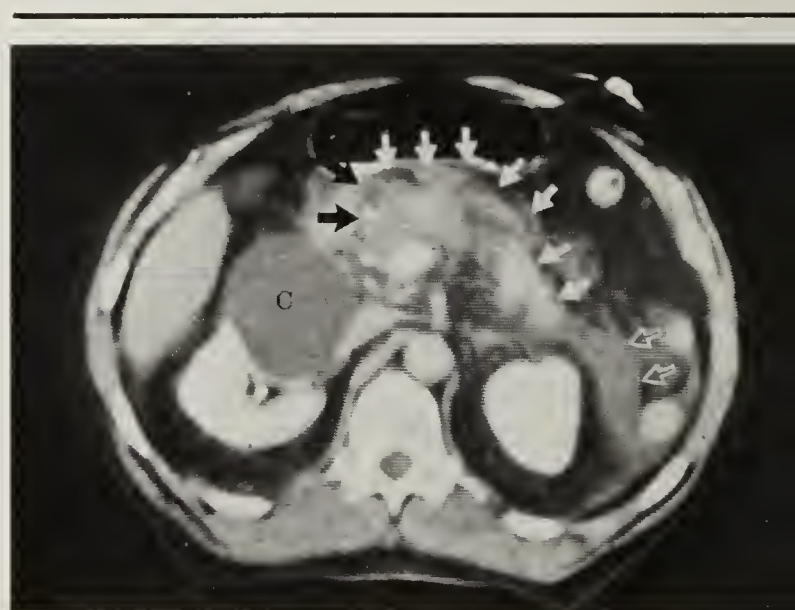


Figure 2

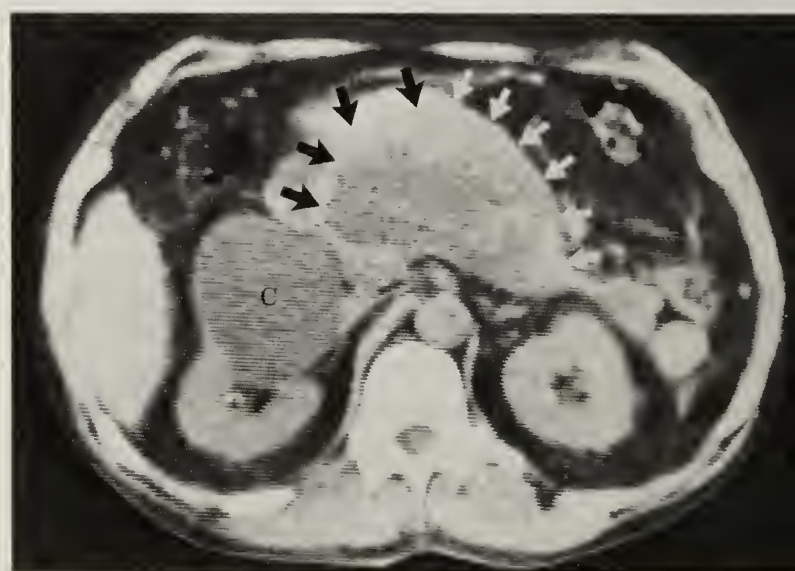
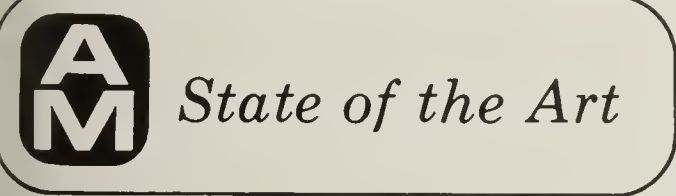


Figure 3





# A Current View of Prostatic Cancer

Frederick Ahmann, M.D.

Editor:  
Eric H. Prosnitz, M.D.

Carcinoma of the prostate is an important clinical problem. It is estimated that 66,000 cases were diagnosed in 1980 and approximately twenty-one thousand five hundred deaths occurred, which represent 10% of the total cancer deaths in males.<sup>1</sup> Additionally, autopsy studies have shown that latent prostatic carcinoma develops at an incidence of 1% of the male population per year from age fifty to eighty.<sup>2</sup>

A definite geographic distribution exists with prostate carcinoma. Mortality rates vary from a high of 18 per 100,000 in Sweden, to a low of one per 100,000 in Taiwan. The rate in the United States has remained relatively constant over the past 25 years at approximately 13 per 100,000. The cause of these geographic distribution differences is unknown. There is an additional increased risk among blacks in this country compared to caucasians. In contrast, African blacks have a low incidence of prostatic carcinoma.<sup>2</sup>

Nearly all prostatic cancers are adenocarcinomas, arise peripherally in the gland from prostatic acini, and

Table 1  
Staging Classification of Prostate Cancer

| Stage | Definition                                                                                     |
|-------|------------------------------------------------------------------------------------------------|
| A     | Clinically occult disease                                                                      |
| B     | Cancer confined to the prostate with a palpable nodule                                         |
| C     | Extension of the cancer outside the prostatic capsule but without nodule or distant metastases |
| D     | Metastases to lymph nodes or distally                                                          |

secrete mucin. Eighty-five percent are multifocal in origin with less than 10% confined to a single nodule.<sup>3</sup> The generally accepted staging classification is shown in table 1. In most large series, 80% of all patients present with Stage C or D disease.<sup>4</sup>

Prostatic carcinoma preferentially metastasizes to bone via the hematogenous route with the most frequent bone sites being the pelvis, spine, femurs, and ribs. Spine involvement is usually in the vertebral body and frequently produces cord compression. Other areas

From: University of Arizona Health Sciences Center, Tucson, Arizona 85724. Dr Ahmann is Assistant Professor of Medicine

of metastatic disease in order of frequency are liver, lung, and brain. These sites carry a poor prognosis. After either definitive surgery or irradiation to the prostate gland, local recurrences are rare.<sup>5</sup>

Most cases of prostatic carcinoma are detected when either irritative or obstructive symptoms develop that mimic prostatitis or benign prostatic hypertrophy. By this time, the prostatic tumors are usually Stage C or D and are not responsive to local treatment alone. The few cases of Stage B carcinoma detected on physical examination are almost entirely in asymptomatic patients. Currently, the accepted screening examination is a careful rectal examination, but even the rectal examination is a poor screening test as demonstrated in studies of both military officers and business executives who undergo yearly physical examinations. Eighty percent of detected prostatic carcinomas in these populations were Stage C or D at presentation. This is no better than the detection rate in patients not undergoing yearly rectal examination.<sup>4</sup>

The one biological marker classically associated with prostatic carcinoma is acid phosphatase, a group of enzymes which hydrolyze esters of ortho-phosphoric acid at a pH of 4.8 to 6. This enzyme was first identified in red blood cells but is also found in platelets, leukocytes, and reticuloendothelial, liver, spleen, and kidney cells. The highest amounts, nevertheless, are in epithelial cells of the prostate as well in prostate secretions. Serum acid phosphatase levels do tend to correlate with the degree of disease, but this correlation is not absolute. For example, five percent of Stage A patients have significant elevations of acid phosphatase as compared to, twenty percent of Stage C patients and eighty percent of Stage D patients.<sup>6</sup>

In the last five years, two new laboratory techniques have become available which allow for direct measurement of acid phosphatase. These include a radioimmunoassay which is complex, time consuming, expensive, but very sensitive. Of more practical value is a semiquantitative counterimmunoelectrophoresis method which is inexpensive, simple, and fast. However, despite more sensitive methods, the measurement of acid phosphatase levels has not been shown to be accurate in detecting metastatic prostatic carcinoma.<sup>7</sup> The most sensitive test for detecting bone metastases in prostatic carcinoma is the bone scan, which has also been shown to be the most sensitive and precise method for following the course of prostatic carcinoma either for recurrence or for response to treatment.<sup>8</sup>

Once a prostatic carcinoma has been diagnosed, usually by needle biopsy or transurethral resection, and is not clinically Stage C or D disease, further staging procedures should include determination of serum acid phosphatase, serum alkaline phosphatase, liver function tests, bone scan and chest x-ray. If these studies are not diagnostic of metastatic disease, other studies prior to a definitive local procedure should be considered. These include either a lymphangiogram or a surgical lymphadenectomy. Multiple surgical studies suggest

that only patients with Stage B lesions should be considered for a radical prostatectomy although a case can be made for performing this procedure in patients with multi-focal Stage A lesions or undifferentiated Stage A lesions in patients under the age of sixty.<sup>5,9,10</sup>

Radical prostatectomy for Stage B lesions either by the perineal or retropubic route has a 15 year relapse-free survival of approximately 20%.<sup>11</sup> The mortality rates for prostatectomy are approximately one percent but all patients become impotent, and some degree of stress incontinence is not uncommon. No randomized study has been carried out comparing radiation and radical prostatectomy, but there are uncontrolled data supporting the use of radiation as an alternative to prostatectomy. There are no data supporting the use of adjuvant radiation therapy to lymph node areas after prostatectomy.<sup>12</sup>

The treatment of Stage C and D prostatic carcinoma remains somewhat controversial. Surgical results for Stage C patients are not encouraging, and surgery has no role in Stage D except for the relief of urinary obstruction.<sup>13</sup> The use of estrogen therapy for metastatic prostatic carcinoma was initiated in 1941. A large study was published in 1950, including untreated controls, demonstrating a significant survival and symptom-free survival benefit for patients treated with either estrogen or castration.<sup>14</sup> These early findings were further clarified by several Veterans Administration studies which took place during the 1960's and early 1970's. Initially Stage C and D patients were found to have a decrease in cancer death rates from a daily dose of 5 mg of DES, but the benefit was cancelled by an increase in cardiovascular deaths.<sup>15</sup>

A second Veterans Administration cooperative group study has subsequently demonstrated that 1 mg of DES is as effective as 5 mg of DES in reducing cancer deaths, but does not carry an increased cardiovascular complication rate. However, no clear overall survival benefit has been demonstrated from the use of estrogens or castration in the Veterans Administration studies. A frequent criticism of these studies is that the control groups eventually received DES or castration upon disease progression.<sup>15</sup> A further conclusion from these studies was that estrogens were superior to castration. It is unfortunate that an additional study, comparing 1 mg of DES versus castration versus placebo, was not performed.

Retrospective pathologic grading of tumors from the Veterans Administration studies has demonstrated that prostatic tumors of very low or very high pathologic grade do not benefit from either castration or estrogen treatment. In contrast, those patients with an intermediate grade of malignancy (the majority of patients) experience increased survival after either estrogen administration or castration.<sup>16</sup>

The exact mode of action of estrogens is unknown. It has been assumed that the mechanism is via the inhibition of testosterone production. However, serum



testosterone levels do not have to be suppressed to castration levels for a response to occur with estrogens. Additionally, progestational agents possess activity against prostatic carcinoma as do anti-estrogens.<sup>17,18</sup>

Some information is also available from various studies on the potentially most accurate way of following patients in whom estrogen therapy has been initiated. One mg of DES will lower plasma testosterone levels to approximately 20% to 40% of baseline levels.<sup>19</sup> In a number of these patients plasma testosterone levels rise at the time of relapse. Such patients may respond to an increase in the DES dose. This suggests that plasma testosterone may be a useful marker for following patients undergoing estrogen therapy.

In the past several years hormone receptor analysis has increased our knowledge of the modulation of certain tumors. Receptor data has been extensively utilized in breast cancer. However, in prostatic cancer, a minimal amount of information is available. A Swedish group has studied androgen receptor protein in thirty patients with prostatic cancer. Twenty-four (80%) had elevated levels. Those 80% appear to be patients who responded to estrogens or castration. Additionally, five metastatic lesions have been analyzed. No estrogen receptor protein was found, but two of the five had elevated levels of progesterone receptor protein and three of the five had elevated levels of glucocorticoid receptor protein.<sup>20,21</sup> It is important to recognize that the total number of patients in which these studies have been performed is small and that the clinical impact of these findings is not yet clear.

Sooner or later most patients progress on hormone therapy, and systemic cytotoxic therapy must be considered as an alternative. As recently as 1975, there had been little significant evaluation of even single agents in prostatic carcinoma. Recognized active single agents included 5FU, cyclophosphamide, nitrogen mustard, busulfan and mithramycin.<sup>22</sup> Since 1975 other active drugs have been identified including melphalan, CCNU, cis-platinum and adriamycin. Among all these drugs cis-platinum appears to be the most active with a response rate of approximately 30%.<sup>23</sup> Very few studies of combination chemotherapy have been reported but adriamycin plus cytoxan combinations are effective in producing partial responses in 20-30% of patients. The chemotherapy of prostatic carcinoma remains one of the most neglected areas of medical oncology.

Immunotherapy and other biologic response modifiers are also a largely unexplored area. However, one report of the adjuvant use of BCG in Stage B lesions was encouraging.<sup>24</sup>

## Summary

Carcinoma of the prostate is the third leading type of cancer in men over the age of fifty-five. This adenocarcinoma of unclear cause has a unique geographical distribution suggesting an environmental factor. Most patients present with metastatic disease, and definitive surgery or radiotherapy is curative in only ten percent of cases. The only reliable biologic marker

for prostatic carcinoma is acid phosphatase. The treatment of metastatic disease remains controversial. Subjective relief of symptoms can be obtained in the majority of patients with either the use of DES or castration, but overall survival benefit is minimal. However, subsets of patients, excluding either high or low pathologic grades of tumor do appear to have survival benefit. The chemotherapy of prostatic carcinoma remains one of the most neglected areas of medical oncology, but in patients failing hormonal therapies, 20% to 30% may benefit from either single or combination chemotherapy.

## References

1. Silverberg E: Cancer statistics, 1980. *CA - A Cancer Journal for Clinicians*. 30:1:23-38, 1980.
2. Hutchison G: Epidemiology of prostatic cancer. *Seminars in Oncology*. 3:2:151-159, 1976.
3. Byar DP, Mostofi FK: Carcinoma of the prostate: Prognostic evaluation of certain pathologic features in 208 radical prostatectomies examined by step section technique. *Cancer*. 30:5, 1972.
4. Giltes RF, Chu TM: Detection and diagnosis of prostatic cancer. *Seminars in Oncology*. 3:2:123-130, 1976.
5. Catalina W, Scott W: Carcinoma of the prostate: A review. *J of Urology*. 119:1-8, 1978.
6. Henneberry M, Engel G, Grayhardk J: Acid Phosphatase. *Urol. Clinics of NA*. 6:3:629-641, 1979.
7. Murphy G, Karr J, Chu TM: Prostatic acid phosphatase: Where are we? *CA - A Cancer Journal for Clinicians*. 28:5:258-264, 1978.
8. Fitzpatrick A: Serial bone scanning: Assessment of therapeutic response in carcinoma of the prostate. *J of Urology*. 50:555, 1978.
9. Bruce A, O'Clereachain F, Morales A, Awad S: Carcinoma of the prostate - A critical look at staging. *J of Urology*. 117:319-322, 1977.
10. Correa R, Anderson R, Gibbons R, Mason T: Latent carcinoma of the prostate - why the controversy? *J of Urology*. 111:644-646, 1974.
11. Jewett H: The present status of radical prostatectomy for Stages A and B prostatic cancer. *Urol Clin of NA*. 2:105, 1975.
12. Pistenna D, Ray G, Bagshaw M: The role of megavoltage radiation therapy in the treatment of prostatic carcinomas. *Seminars in Oncology*. 3:2:115-129, 1976.
13. Catalona W, Scott W: Carcinoma of the prostate: A review. *J of Urology*. 119:1-8, 1978.
14. Nesbit R, Baum W: Endocrine control of prostatic carcinoma. *JAMA* 143:1317-1320, 1950.
15. Byar D: The Veterans Administration Cooperative Urological research group studies of cancer of the prostate. *Cancer*. 32:1126-1130, 1973.
16. Gleason D, Mellinger G, Veterans Administration Cooperative Urological Research Group: Prediction of prognosis for prostatic adenocarcinoma by combined histological grading and clinical staging. *J of Urology*. 111:58-64, 1974.
17. Denis L, Declercq G: Progestogens in prostatic cancer. *European Urol* 4:162-166, 1978.
18. Kocze A, Szekely J: Tamoxifen in advanced prostatic carcinoma. *Lancet*. 8 March, 1980, p 539.
19. Beck P, McAnmch J, Goebel J, Strutzman R: Plasma testosterone in patients receiving DES. *Urology*. 11:2:157-160, 1978.
20. Ekman B, et al: Steroid receptors in metastatic carcinoma of the prostate. *Europ J of Can Res*. 15:257, 1979.
21. Ekman B, et al: Steroid receptor content in human prostatic carcinoma and response to endocrine therapy. *Cancer*. 44:1173, 1979.
22. Carter S, Wasserman T: The chemotherapy of urologic cancer. *Cancer* 36:729-747, 1975.
23. Merrin C., Beckley S: Treatment of estrogen resistant stage D carcinoma of prostate with cis-diamminedichloroplatinum. *Urology*. 13:3:267, 1979.
24. Gruman D, Baumgartner G, et al: Adjuvant immunotherapy with BCG in prostatic cancer. *Urology*. 14:6:561-565, 1979.



ARMA



Editorials

**President**

John T. Clymer, M.D.

**President-Elect**

Clyde W. Kurtz, M.D.

**Vice President**

John E. Oakley, M.D.

**Secretary**

Earl J. Baker, M.D.

**Treasurer**

Neopito L. Robles, M.D.

**Executive Director**

Bruce E. Robinson

**Publishing Committee**

Marshall B. Block, M.D., Chairman

Burnell R. Brown, M.D.

C. Herbert Fredell, M.D.

Benjamin K. Harris, M.D.

Jonathan M. Levy, M.D.

William B. McGrath, M.D.

## Natural Allies— Auxilians

At a time when *medicine* needs all the friends it can get, don't forget our natural allies — the *auxiliaries* to the *county medical societies* and the *state association*.

We've grown accustomed, over the years, to sharing in the community good will they've earned with a wide array of health projects: the GEMS training course for babysitters; the nutrition puppets; eye-screening and audiology tests for kindergarteners; breast self-examination classes; immunization drives; Mobile Meals, health fairs; health career days; blood donor campaigns; timely workshops on concerns of Arizona women.

We've seen Auxiliary members raise thousands of dollars for health care institutions and agencies in their counties and contribute thousands of hours in volunteer service.

We've applauded their scholarship and loan funds, which have helped so many Arizonans get the training they needed to become nurses, doctors, allied health professionals.

But we've neither appreciated nor fully utilized the talents, the energy, the creativity of the Auxiliary members.

They are not only spouses of physicians. In their own right they may be lawyers, psychologists, accountants, educators, social workers, journalists, nutritionists, businesswomen, nurses, politicians, artists, agency executives, architects, youth leaders, engineers, designers. Homemakers or careerists — they plan half-million dollar fund-raising campaigns for museums, manage corporations and farms as well as homes, create public relations programs, sit on church councils, school boards and civic committees. They read financial reports, tackle long-range plans, and evaluate programs.

It is time for ArMA and the county societies to jump on the bandwagon and further tap this great reservoir of talent and ability. Medical associations in many states are working more closely with their auxiliaries. For example, Washington State Medical Association

and its Auxiliary do their long-range planning and evaluation together.

When I sit in on meetings of ArMA's Legislative Committee, I'm impressed with Ruth Ogden's knowledge of the legislative process and the foibles of many of the legislators. Sylvia DeFreitas' background material outlining the importance of insurance coverage for reconstructive breast surgery following mastectomy was most impressive. Ruth, Sylvia, and Helen Stern represent the Auxiliary on this committee. Their questions, the concerns they voice, can help focus and clarify our thinking.

But ArMA and the county societies can do more to make use of Auxilians' ideas, their knowledge of the community, their organizational ability, their energy and their determination to get the job done quickly and well. We've got to use the intuitiveness and sensitivity of Auxiliary members in dealing with legislators and local government officials. We should seek advice and help from Auxilians in establishing alliances with professional and civic groups to which they belong. We need their savvy about public relations to help us reach the community.

There are many contributions Auxilians — male or female — can make. I ask ArMA members to encourage your spouse to join the Auxiliary, to participate in the meetings, projects, and workshops. Welcome his or her support of organized medicine. The Auxiliary has a slogan that says it all, "*Together We Can Do More*".

John T. Clymer, M.D.  
President, ArMA

## There are Only Two Sure Things in Life: Death and Taxes, or are There?

With the increasing use of technological support it is increasingly difficult at times to know when a patient has truly died. Because of the uncertainty that now exists in certain situations, the Arizona Medical Association thought that it should review the current status and definition of death, and the conclusion of the Professional Committee which undertook such a survey is presented below. Because of the medicolegal implications all physicians should read this opinion. **MBB, Editor**



# Definition of Death

## Overview

In recent years there has been considerable discussion concerning an acceptable definition of death. Death has traditionally been determined on the basis of absence of cardiac and respiratory functions. However, modern technology permitting the artificial maintenance of cardiac and respiratory functions after all other bodily functions have ceased (including unaided cardiac and respiratory functions), has caused a re-examination of this traditional concept of death beyond cardiorespiratory failure.

A basis for determining death predicated on an irreversible cessation of all the functions of the brain was developed. Absence of express legal recognition of brain death as a medically accepted criteria upon which death may be determined, however, created a void in law with regard to the legality of the concept. Combined with the prevailing malpractice climate, physicians may be hesitant to make determinations of brain death due to legal uncertainties and possible time consuming litigations.

The American Medical Association, American Bar Association, the National Conference of Commissioners on Uniform State Laws as well as state societies and legislatures have struggled with the problem of defining death. Many states have enacted legislation providing for a legal recognition of the brain death concept. Some state statutes are terribly restrictive, some require consultation, some appear to exclude the traditional cardiorespiratory failure concept, while others provide that a physician who makes a determination of brain death may not participate in the removal or transplantation of any organs. In some states the courts have been allowed to recognize brain death as a valid basis upon which to declare death. It is clear that each state legislature and court considering a definition of death included its own approach to a medical diagnosis.

## Arizona Supreme Court Decision

In October 1979, the Supreme Court of Arizona in *State v. Fierro* (124 Ariz. 182, 603 P. 2d 74) considered the definition of death and in its decision adopted all of the following definitions:

1. The common law definition of death from Black's Law Dictionary 488 (4th ed. 1968)—

"The cessation of life; the ceasing to exist; defined by physicians as a total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereon, such as respiration, pulsation, etc.' . . . ' Thus, according to common law, as long as the person was breathing and the blood was flowing through his veins he was not dead even though his brain was no longer able to function."

2. Harvard Medical School definition of death —

2. "Cessation of life as 'brain death' which takes place when there is (1) unresponsiveness to normally painful stimuli; (2) absence of spontaneous movements or breathing; and (3) absence of reflexes."

3. National Conference of Commissioners on Uniform State Laws definition of death—

"for legal and medical purposes an individual who has sustained irreversible cessation of all functioning of the brain including the brain stem, is dead." The uniform law provides that a determination of brain death must be made "in accordance with the reasonable medical standards."

4. The court further provided —

"A statutory definition is not necessary, . . . Both the fact of death and its cause can be apparent to an ordinary layman when the condition of the body or the nature of the wound is such that no other determination is reasonable. When these obvious factors are present, it is not necessary that experts be required to testify in order to establish death and its cause. It is only where the fact of death and its cause is beyond the understanding of the average layman that expert testimony may be necessary."

## Conclusion

The Board of Directors of the Arizona Medical Association has determined that a "statutory definition of death" is unnecessary and at this time undesirable in the State of Arizona. Arizona courts have recognized the prerogative of a physician to declare a person dead based on (1) cardiorespiratory failure, or (2) brain death determined in accordance with reasonable medical standards. There is much to be said for not statutorily defining death or any other similar medical procedure or definition that is growing or expanding. If there is no statute, an expanded definition by "reasonable medical standards" will become instant law in a court decision. If there is a definition in statute, it will not change unless and until the statutory definition is amended.

Professional Committee  
ArMA

## Women in Medical School

In 1870, there were only 525 women doctors in the United States, less than one percent of the physician population; in 1979-80, over 16,000 women were enrolled in the nation's medical schools

representing one quarter of the total student body. As this decade starts, nearly one out of every four persons entering residency training is a woman and within the next two or three years, depending on the length of the residency, one out of every four persons entering the practice of medicine will be a woman. Looking at these numbers, it seems appropriate to ask three questions: How do women fare in the admissions process to medical school? How do women perform in medical school? How do women serve as physicians?

Nationally, women are admitted to medical school — as are men — in roughly the same proportions as they apply. Women come before admissions committees with sound credentials as evidenced by grade point averages and the New Medical College Admission Test scores. Women, like men, seek out health care experiences prior to coming to medical school and voice at interview a similar commitment to helping people. The University of Arizona College of Medicine has admitted approximately thirty percent women to each class over the past several years. The percentage of women admitted here is proportional to the number of women in the Arizona applicant pool, but higher than the national average of 25%.

Women's performance in medical school does not differ significantly from that of men. Minute variations are found but for the most part women and men are equal: in academic performance as measured by both cognitive examinations and ward performance evaluations at medical school; attrition rates, both academic and non-academic; National Board of Medical Examiners test scores; election to Alpha Omega Alpha; and selection to competitive residency training programs.

As larger numbers of women began to be admitted to medical schools, and in response to the social pressures of the times, several medical schools set up special support services for women such as special counseling services, offices for women in medicine and use of women role models. By 1974, there was no medical school in America that had fewer than ten percent women in its entering class. This provided the most important support of all, that of peer group support, which women can give themselves when they are present in sufficient numbers. In many schools including Arizona, women have organized themselves into informal or formal organizations of women medical students or have become junior members of the American Medical Women's Association.

There has been a change over the past decade in specialty choices made by women. Fewer women are opting for fields thought to be traditionally female



such as pediatrics and psychiatry and more are heading for internal medicine, family practice and obstetrics/gynecology. The percentage of women accepted in surgery or surgical sub-specialties is not yet startling.

Women may still require special help with career planning, practice location choices and the management of dual career families. It is important to point out, however, that the dual career family is a problem not only for women medical students and residents but for men as well. Twenty years ago most male physicians married nurses or school teachers who had maximum geographic mobility. Today, the wife of a medical student might be a geophysicist or an archeologist or an attorney with her own special career goals. In such families, the process of making geographical choices for hospital training and practice must be a joint decision and, in some cases, is a very difficult decision.

What of the woman physician? Is she productive? Does she find time to marry and have a family? Is she accepted by her patients? The lifetime productivity of women physicians is 9/10 that of men physicians, an astounding figure when one takes into account that the majority of women doctors are married and have children. In a sample of women physicians studied recently, only seven percent were not working because of traditional female reasons: child bearing or child rearing. Women physicians are well accepted by patients. A Gallup Poll found that forty percent of both men and women respondents had no preference regarding the sex of their physician though fifty-eight percent of the men and forty-nine percent of the women indicated a preference for a male physician. Another survey found the same degree of acceptance of women physicians among Mormons and non-Mormons.

Women physicians who combine medicine with motherhood can help other women in varying careers, jobs and professions solve the problems of the working mother. Some of the strategies that the woman physician uses in managing her dual responsibilities of a demanding profession and a family can be useful to other women. Women physicians may wish to assume an additional responsibility to serve as role models — not only to women medical students — but to all women who choose to work.

Marilyn Heins, M.D.  
Associate Professor of Pediatrics  
Associate Dean for Academic Affairs

Louis J. Kettel, M.D.  
Dean, College of Medicine

## Auxiliary Highlights

### Health Education

Comprehensive health education for Arizona school children — long a goal of ArMA's Auxiliary — was the topic for a special workshop at the State Auxiliary's February board meeting.

The speakers were Georgia Macdonough, school health consultant for Arizona's Bureau of Maternal and Child Health, DHS; Carol Davis Nelson, nutrition educator from the state Department of Education; and Dr. Kerry Redican, associate professor in ASU's Department of Health Sciences.

A good health education program, these experts agreed, will provide sound information for students in a meaningful way so they can make decisions about health. It will offer a multi-media approach and stress values clarification and the decision process.

Dr. Redican described several outstanding programs: The School Health Curriculum Project (sometimes called The Berkeley Project) for grades 4 through 7, and a Seattle Project for grades K through 3. He showed a slide presentation of the health education program used in a Pennsylvania school district.

Teacher training workshops, assistance from parent aides and resource persons are all vital for the success of the programs. The key, said Dr. Redican, is involving the children in the learning process, giving them models for changes in health habits, helping them to a significantly better self-image and a desire to maintain a healthy body.

Asked bluntly if it will be possible to get statewide health education, Georgia Macdonough said, "I think we can do it statewide but we'll need the strong support of parents and a variety of professionals. Programs are being implemented now in some primary grades as a result of an ASU Conference on Health Education for teachers and administrators from many districts. Once parents come in to the schools and watch, they'll spread the good word."

Carol Davis Nelson reminded the group that health education for kindergarten through eighth grade is mandated by state law. The Education Department produces a course outline for the health curriculum. The choice of text books and teaching materials and how the subject will be taught is left up to each district.

She suggested Auxilians work with the school boards in each district, pointing out that the teaching of basic skills — computation, communication, good citizenship — also mandated by state law can be combined with the teaching of health. As an example, she cited the state's nutrition education programs, which are cross-indexed with basic skills so teachers can pull out lessons that teach specific basic skills using nutrition as a topic.

Ready for action, ArMA's Auxiliary will be represented at meetings of the American School Health Association.



### *In Memoriam*

**Ernest A. Born, M.D.**  
**1904-1980**



It was on September 11, 1904 that Ernest August Born arrived in Prescott, Arizona Territory, one of the nine children of Charles and Margaret Johnston Born. This was a close-knit family and many principles of living were indoctrinated in the children that became standards of action throughout life. Independence was prized. Problems were



to be met by organizing and using one's own resources as far as possible. Time was something not to be wasted. Charles Born was a postman when the home delivery of mail first became a service. If a school census was needed, Charles Born would take it and the accurate results would be delivered promptly to the authorities needing it. With a large family to raise, and seven boys to keep occupied, he managed a movie theater, and found enough after-school chores to take up their idle time.

Ernest was graduated from Prescott High School in 1922. The Senior class that year toiled mightily that spring to produce the huge stone "P" on the mountain east of town, the first such initial in Northern Arizona. He was graduated from the University of Arizona, and attended the University of Southern California for two years and received his M.D. degree from Rush Medical School in Chicago. He interned at L. A. County General Hospital and at Cedars of Lebanon Hospital in Los Angeles. He came back to Prescott in 1933.

His original plan was to join a doctor in Tucson, but in talking to an older Prescott physician, Dr. Robert Looney, he was asked to see a patient who was bleeding dangerously. It was a woman with retained secundines and he found her in critical condition. While her blood was being cross-matched, he purchased all the 30 c.c. syringes in town and had them sterilized. Then with Dr. Looney on the team, the patient was given two units of blood by direct transfusion. Citrated blood was deemed "altered" and not desirable at the time. With her condition improved, the patient received a D and C and eventually recovered completely. Dr. Looney had other cases needing surgery, and Born assisted with those, and then there were more, and he never did get to Tucson.

In addition to his private practice, Born continued to assist Dr. Looney with Yavapai County's indigent medical care program. He did obstetrics, which in those depression days, meant home deliveries. He had nursing assistance and even handled some of the problem cases in the home. Cesarean sections were rare, and were done in the hospital. After a few years he qualified for membership in the American College of Surgeons.

During WWII Born went into service on June 10, 1942, first going to a medical unit at Desert Training Center. This was the 7th Surgical Hospital Unit (later named 92nd Evac Semi-Mobile) and was located at Freda, California. The team developed a special technique for the care of ruptured livers — not a rare problem in tank accidents. The damaged liver was packed and bound and the peritoneum closed, to be opened a few days later and

the packing removed. The survival rate was impressive.

He went to England with the 34th General Hospital at Stockbridge, near Southampton, working entirely in orthopedics. He was on an auxiliary team that worked in France and across the Rhine, moving from one area to another wherever the backlog of casualties was high. He was discharged at Camp Crowder, Missouri in 1945, with terminal leave ending December 4. He retired as a Lt. Colonel from the Army Reserve in 1956.

Upon returning to his private practice in Prescott, he became a consultant in orthopedic surgery at Whipple V.A. Hospital. He married Elizabeth Cory Bartlett.

He also resumed serving as Yavapai County Physician and Surgeon and became the attending physician at the Arizona Pioneers Home. He was the official federal jail physician. In the 1950's the Arizona Medical Association undertook a campaign to improve the quality of care at the Arizona State Hospital. He served long hours in that effort.

In 1973, he and his office nurse were shot by a demented patient. Both survived their wounds. Other health problems were found at that time, but he recovered sufficiently to resume his private practice until he closed his office in July 1980.

His hobbies were golf and photography, pursuing both for many years. He was a member of the Odd Fellows, York Rite Masonic Bodies, El Zaribah Shrine Temple, Yavapai Shrine Club, Knights Templar Eye Foundation, Aztlan Lodge of Mason's, American Legion and Elks Lodge and Veterans of Foreign Wars. In addition to being a Fellow in the American College of Surgeons, he was a member of the County Medical Society, State Medical Association and American Medical Association. He was always an active member of the local hospital staff.

He died December 13, 1980 in Yavapai Community Hospital and is survived by his wife, Elizabeth; son, Dr. Ernest E. Born of Phoenix; two daughters; two sisters; three brothers; eleven grandchildren and two great grandchildren. Upon learning of his death, guests at the Pioneer Home lowered the flag, and had moments of silent prayer in tribute to their friend.



*Arizona  
Medicine*

#### Editor

**Marshall B. Block, M.D.**

#### Associate Editors

**Kenneth Desser, M.D.  
C. Herbert Fredell, M.D.  
Warren Gorman, M.D.**

#### Editorial Board

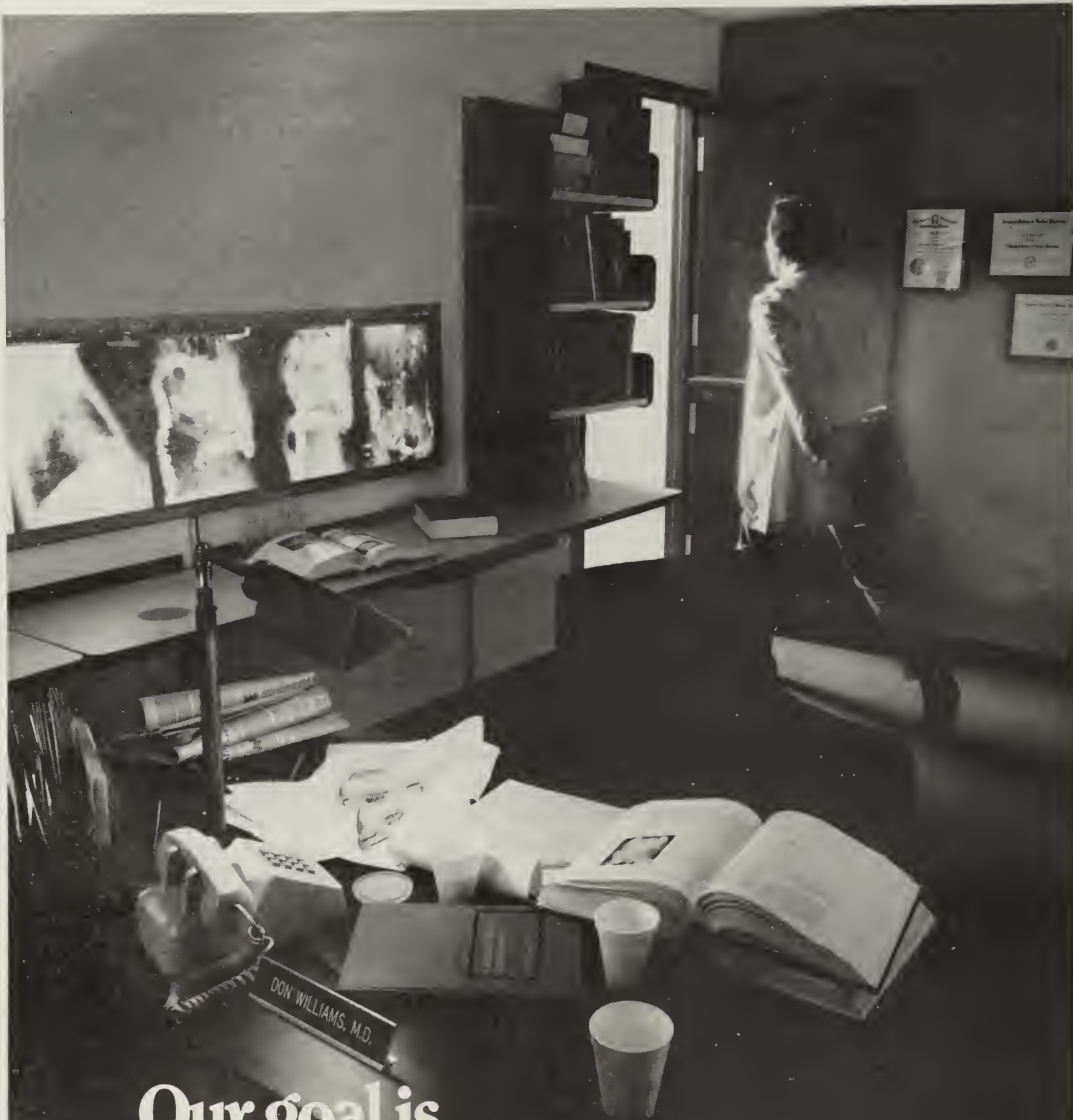
**Thomas E. Blittker, M.D.  
John R. Green, M.D.  
John W. Kennedy, M.D.  
William B. McGrath, M.D.  
Arthur R. Nelson, M.D.  
Charles Nugent, M.D.  
Eric Prosnitz, M.D.  
Sydney Salmon, M.D.  
Lawrence Stern, M.D.**

#### Managing Editor

**Bruce E. Robinson**

#### Editorial Assistant

**Joan M. Bruner**



## Our goal is to help you reach yours.

From medical school through retirement, your financial needs are continually changing. And your time to look after those needs is limited.

That's why Valley Bank has Medical Banking Specialists—trained in the financial needs of medical professionals.

Talk to us about credit and our many other services. They're outlined in our new

brochure: "Financial Services for Medical Professionals."

For more information, call Chuck Green, Vice President and Manager of Professional Services in Phoenix, at 261-2718. In Mesa, call Maria Evans, Medical Banking Specialist, at 261-1890. And in Tucson, call Brenda Koedyker, Assistant Vice President, at 792-7531.

**We go out of our way for you. Valley National Bank**

Member FDIC Equal Opportunity Lender





# 90th Annual Meeting of the Arizona Medical Association The Pointe Resort Phoenix Arizona

# GET TO THE POINTE

| MAY |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| S   | M  | T  | W  | T  | F  | S  |
|     |    |    |    |    | 1  | 2  |
| 3   | 4  | 5  | 6  | 7  | 8  | 9  |
| 10  | 11 | 12 | 13 | 14 | 15 | 16 |
| 17  | 18 | 19 | 20 | 21 | 22 | 23 |
| 24  | 25 | 26 | 27 | 28 | 29 | 30 |
| 31  |    |    |    |    |    |    |

## Mark your calendar . . .

. . . and check off May 20-24, Memorial Day Weekend, 1981!

Four days of education and recreation at the 90th Annual Meeting of the Arizona Medical Association. Structured around a comprehensive program of scientific presentations and supplemented by three "special events" dealing with medical economics and national preparedness. This timely meeting will emphasize continuing medical education and professional excellence. Panels of the highest caliber and many distinguished guest speakers will enhance the learning experience.

The business portions of the meeting will be held on Wednesday and Thursday. Take part by letting your delegates know your views.

And take time out to enjoy the many extra-curricular events: golf and tennis tournaments, a 6-mile fun run, and two deliciously different social evenings. On Friday night, foods from around the world will be featured at an International Affair with the annual President's Reception and Banquet scheduled for Saturday night.

The Pointe Resort in Phoenix is the perfect setting for this innovative meeting. The Pointe features a wide range of facilities and recreational activities for all members of the family at LOW OFF-SEASON RATES (only \$46 for two).

**GET TO THE POINTE** for the 90th Annual Meeting of the Arizona Medical Association. It's worth your time and money.

The entire convention program is detailed on the following pages of this issue of *Arizona Medicine*.

# SCHEDULE OF EVENTS



**John T. Clymer, M.D.**  
*President*



**Clyde W. Kurtz, M.D.**  
*President-Elect*



**John E. Oakley, M.D.**  
*Vice President*



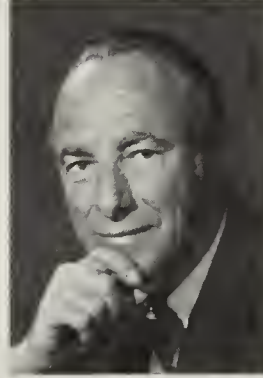
**Earl J. Baker, M.D.**  
*Secretary*



**Marshall B. Block, M.D.**  
*Editor-In-Chief*



**W. Scott Chisholm, Jr., M.D.**  
*Delegate to AMA*



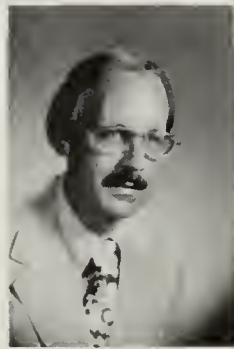
**Edward Sattenspiel, M.D.**  
*Delegate to AMA*



**William C. Scott, M.D.**  
*Delegate to AMA*



**Richard L. Collins, M.D.**  
*Central District Dir.*



**Howard S. Gary, M.D.**  
*Central District Dir.*



**John K. Kerr, M.D.**  
*Central District Dir.*



**Rudolf Kirschner, M.D.**  
*Central District Dir.*



**Daniel L. Neel, M.D.**  
*Northeastern District Dir.*



**Ronald S. Gardner, M.D.**  
*Northwestern District Dir.*



**Kenneth A. Dregseth, M.D.**  
*Southeastern District Dir.*



**C. D. DeBenedetti, M.D.**  
*Southern District Dir.*



## ArMA Board of Directors



**Emilio L. Robles, M.D.**  
*Treasurer*



**William E. Crisp, M.D.**  
*Past President*



**Robert A. Price, M.D.**  
*Speaker of the House*



**Bruce N. Curtis, M.D.**  
*Alt. Delegate to AMA*



**Joseph S. Whaley, M.D.**  
*Alt. Delegate to AMA*



**Richard D. Zonis, M.D.**  
*Alt. Delegate to AMA*



**Daniel T. Cloud, M.D.**  
*Pres.-Elect AMA*



**Philip Levy, M.D.**  
*Central District Dir.*



**Herbert N. Munhall, M.D.**  
*Central District Dir.*



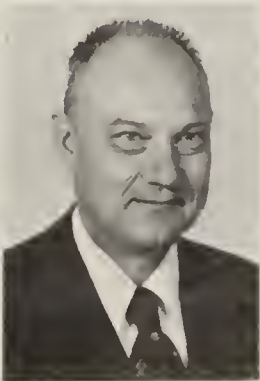
**Wilfred M. Potter, M.D.**  
*Central District Dir.*



**Neil O. Ward, M.D.**  
*Central District Dir.*



**Morton Fuchs, M.D.**  
*Southern District Dir.*



**Jack M. Layton, M.D.**  
*Southern District Dir.*



**Christopher T. Maloney, M.D.**  
*Southern District Dir.*



**James F. Martin, M.D.**  
*Southwestern District Dir.*

# Annual Meeting Program at a Glance

Wednesday, May 20, 19

| Wednesday                     | South Court Room<br>#1 & 2                      | North Court Room<br>#1 & 2                     | Grande Ballroom<br>#A, B, C, D, E, F, G         | Pointe of View<br>#A, B, C, D, E                           |
|-------------------------------|-------------------------------------------------|------------------------------------------------|-------------------------------------------------|------------------------------------------------------------|
| 6:00 A.M.<br>to<br>8:00 A.M.  | Executive Committee<br>Breakfast<br>#1          |                                                |                                                 |                                                            |
| 8:00 A.M.<br>to<br>10:00 A.M. |                                                 | Board of Directors<br>#1 & 2                   |                                                 |                                                            |
| 10:00 A.M.<br>to<br>12 Noon   |                                                 |                                                | House of Delegates<br>1st Session<br>#E, F, & G |                                                            |
| 2:00 P.M.<br>to<br>5:00 P.M.  | Reference Committee<br>on<br>Resolutions #1 & 2 | Reference Committee<br>on<br>Amendments #1 & 2 |                                                 |                                                            |
| 6:00 P.M.                     |                                                 |                                                |                                                 | Physician Rehabilitative<br>Committee Dinner<br>Meeting #B |
| 7:00 P.M.<br>to<br>9:00 P.M.  | Maricopa County<br>Caucus<br>#1 & 2             |                                                |                                                 |                                                            |
| 7:30 P.M.<br>to<br>9:30 P.M.  |                                                 |                                                |                                                 | Pima County<br>Caucus<br>#A                                |

Thursday, May 21, 19

| Thursday                   | South Court Room<br>#1 & 2 | North Court Room<br>#1 & 2 | Grande Ballroom<br>#A, B, C, D, E, F, G       | Pointe of View<br>#A, B, C, D,                         |
|----------------------------|----------------------------|----------------------------|-----------------------------------------------|--------------------------------------------------------|
| 8:00 A.M.<br>to<br>12 Noon |                            |                            | House of Delegates<br>2nd Session<br>#E, F, G |                                                        |
| 12 Noon<br>to<br>2:00 P.M. |                            |                            |                                               | Past Presidents'<br>Luncheon<br>#A                     |
| 12 Noon<br>to<br>2:00 P.M. |                            |                            |                                               | Arizona Society of<br>Internal Medicine<br>Luncheon #B |
| 12 Noon<br>to<br>2:00 P.M. |                            |                            |                                               | ArMA Board of<br>Directors' Luncheon<br>#C & D         |
| 12 Noon                    |                            |                            | Set up of<br>Exhibits<br>#A - E               |                                                        |



|                              |                                                                                                            |                                                 |  |
|------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------|--|
| 12 Noon                      | Golf Tournament - Orange Tree Golf Club - 56th Street & Shea Blvd. - pre-registration required - \$30 Fee  |                                                 |  |
| 2:00 P.M.<br>to<br>5:00 P.M. |                                                                                                            | "Speaking Effectively II"<br>Workshop<br>#1 & 2 |  |
| 6:00 P.M.                    | Tennis Tournament - The Village Tennis Club - 4444 E. Camelback Rd. - pre-registration required - \$10 Fee |                                                 |  |

**Friday, May 22, 1981**

| <b>Friday<br/>A.M.</b>       | <b>South Court Room<br/>#1 &amp; 2</b>                                                                                       | <b>North Court Room<br/>#1 &amp; 2</b>                                                | <b>Grande Ballroom<br/>#A, B, C, D, E, F, G</b>                                                                                                              | <b>Pointe of View<br/>#A, B, C, D,</b>                                                                                           |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 6:30 A.M.                    | Six Mile Fun Run - Herberger Park #2 - North 20 Street & East Maryland Ave. - Phoenix<br>pre-registration required - \$7 Fee |                                                                                       |                                                                                                                                                              |                                                                                                                                  |
| 7:00 A.M.<br>to<br>12 Noon   |                                                                                                                              | <b>Advanced Cardiac Life<br/>Support Provider<br/>Course #1 &amp; 2</b>               | Set up of<br>Exhibits<br>#A - E                                                                                                                              |                                                                                                                                  |
| 8:30 A.M.<br>to<br>12 Noon   |                                                                                                                              |                                                                                       |                                                                                                                                                              | 'Facets of Communication'<br>Workshops<br>#A - D                                                                                 |
| 12 Noon<br>to<br>5:00 P.M.   |                                                                                                                              |                                                                                       | Exhibits Open<br>#A - E                                                                                                                                      |                                                                                                                                  |
| <b>Friday<br/>P.M.</b>       | <b>North Court Room<br/>#1</b>                                                                                               | <b>North Court Room<br/>#2</b>                                                        | <b>Grande Ballroom<br/>#F</b>                                                                                                                                | <b>Grande Ballroom<br/>#G</b>                                                                                                    |
| 2:00 P.M.<br>to<br>2:30 P.M. | <b>Advanced Cardiac Life<br/>Support Provider<br/>Course</b><br>↓<br>↓<br>↓<br>↓<br>↓                                        | <b>Advanced Cardiac Life<br/>Support Provider<br/>Course</b><br>↓<br>↓<br>↓<br>↓<br>↓ | <b>Taking the Confusion out of<br/>"NSAID" (Non-Steroid<br/>Anti-inflammatory Drugs)</b><br><i>Alan H. Mallace, M.D.<br/>moderator<br/>Luis S. Tan, M.D.</i> | <b>Medical Care Rationing</b><br><br><i>Victor Fuchs, Ph.D.</i><br><br><br><br><i>moderator<br/>Laurence M. Linkner, M.D.</i>    |
| 2:30 P.M.<br>to<br>3:00 P.M. |                                                                                                                              |                                                                                       | <b>Clinical Implications of<br/>Drug Nephrotoxicity</b><br><i>Andrew Whelton, M.D.<br/>moderator<br/>C. D. DeBenedetti, M.D.</i>                             |                                                                                                                                  |
| 3:00 P.M.<br>to<br>3:30 P.M. | <b>Recess - Visit Exhibits</b>                                                                                               | <b>Recess - Visit Exhibits</b>                                                        | <b>Recess - Visit Exhibits</b>                                                                                                                               | <b>Recess - Visit Exhibits</b>                                                                                                   |
| 3:30 P.M.<br>to<br>4:00 P.M. | ↓<br>↓<br>↓<br>↓<br>↓                                                                                                        | ↓<br>↓<br>↓<br>↓<br>↓                                                                 | <b>Diagnosis &amp; Treatment<br/>of Poisoning<br/>Poisonous Plants<br/>Common Drug Poisons</b><br><i>Michael D. Ellis, M.S.</i>                              | <b>Medical Care Rationing<br/>(Panel)</b><br><i>Victor Fuchs, Ph.D.<br/>Robert B. Fetter, Ph.D.<br/>Edward Byrne-Quinn, M.D.</i> |
| 4:00 P.M.<br>to<br>4:30 P.M. |                                                                                                                              |                                                                                       |                                                                                                                                                              |                                                                                                                                  |
| 4:30 P.M.<br>to<br>5:00 P.M. |                                                                                                                              |                                                                                       | <i>moderator<br/>C. D. DeBenedetti, M.D.</i>                                                                                                                 | <i>moderator<br/>Laurence M. Linkner, M.D.</i>                                                                                   |





|                                |                                                              |                                                              |                                                                    |                                                                                                              |
|--------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 11:00 A.M.<br>to<br>11:30 A.M. | <b>Advanced Cardiac Life<br/>Support Provider<br/>Course</b> | <b>Advanced Cardiac Life<br/>Support Provider<br/>Course</b> | <b>Urologic Radiology</b><br><br><i>Richard Friedenber</i> g, M.D. | <b>Sports Medicine<br/>Psychological Aspects of<br/>Sports Injuries</b><br><br><i>Charles M. Kerr</i> , M.D. |
| 11:30 A.M.<br>to<br>12 Noon    |                                                              |                                                              | <i>moderator</i><br><i>Alex Newman</i> , M.D.                      | <i>moderator</i><br><i>Thomas F. Foerster</i> , M.D.                                                         |

[illegible]

|                                           |                                                                                                                                                                                                         |                  |                                                                                                                                                                                                                                  |                                                                                            |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 3:30 P.M.<br>to<br>4:00 P.M.              | ↓<br>↓<br>↓<br>↓                                                                                                                                                                                        | ↓<br>↓<br>↓<br>↓ | <b>Immediate Skin Test<br/>Reactivity to Marijuana<br/>Pollen &amp; Tobacco Leaf<br/>In Arizona</b><br><i>Geraldine L. Freeman, M.D.</i><br>moderator<br><i>James M. Hurley, M.D.</i>                                            | <b>Sports Medicine<br/>A Sports Medicine<br/>Overview</b><br><i>Robert L. Larson, M.D.</i> |
| 4:00 P.M.<br>to<br>4:30 P.M.              | ↓<br>↓<br>↓<br>↓                                                                                                                                                                                        | ↓<br>↓<br>↓<br>↓ | <b>Transsphenoidal Hypophy-<br/>sectomy for Intractable<br/>Cancer Pain</b><br><i>Volker K.H. Sonntag, M.D.</i><br>moderator<br><i>Timothy R. Harrington, M.D.</i>                                                               |                                                                                            |
| 4:30 P.M.<br>to<br>5:00 P.M.              |                                                                                                                                                                                                         |                  | <b>Diagnosis &amp; Management<br/>of Head Injury</b><br>presenter<br><i>John J. Demakas, M.D.</i><br>co-authors<br><i>Timothy R. Harrington, M.D.</i><br><i>Alan Murphy, M.D.</i><br>moderator<br><i>Lawrence Z. Stern, M.D.</i> | moderator<br><i>Thomas P. Foerster, M.D.</i>                                               |
| 7:00 P.M.<br>to<br>8:00 P.M.<br>8:00 P.M. | <p>President's Reception - <b>South Gardens</b></p> <p>President's Banquet - <b>Grande Ballroom #F &amp; G</b><br/> <i>Performance by the Phoenix Boys' Choir - Dancing to music by "Jay David"</i></p> |                  |                                                                                                                                                                                                                                  |                                                                                            |

**Sunday, May 24, 1981**

| <b>Sunday<br/>A.M.</b>         | <b>South Court Room<br/>#1 &amp; 2</b>                                                                                                                                                                                                                                                          | <b>North Court Room<br/>#1 &amp; 2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Grande Ballroom<br/>#A, B, C, D, E, F, G</b>                                                     | <b>Pointe of View<br/>#A, B, C, D,</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:00 A.M.                      |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Exhibits Open<br>#A - E                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                | <b>North Court Room<br/>#1</b>                                                                                                                                                                                                                                                                  | <b>North Court Room<br/>#2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Grande Ballroom<br/>#F</b>                                                                       | <b>Grande Ballroom<br/>#G</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 9:00 A.M.<br>to<br>9:30 A.M.   | <b>Physician Participation<br/>In the Health<br/>Planning Process<br/>(half-day workshop)</b><br><b>Panel:</b><br><i>John E. Tyrrell, M.D.</i><br><i>Wm. C. Scott, M.D.</i><br><i>W.S. Chisholm, Jr., M.D.</i><br><i>John E. Oakley, M.D.</i><br><br>moderator<br><i>Louis C. Kossuth, M.D.</i> | <b>Symposium:<br/>Modern Management<br/>of Stroke</b><br><br><b>Management of<br/>Ischemic Stroke</b><br><i>Richard A. Thompson, M.D.</i><br><b>Neuroradiologic Evalua-<br/>tion of Stroke</b><br><i>John A. Hodak, M.D.</i><br><b>Surgery for<br/>Cerebral Ischemia</b><br><i>L. Phillip Carter, M.D.</i><br><b>Management of Sub-<br/>arachnoid Hemorrhage</b><br><i>Robert M. Crowell, M.D.</i><br><b>Up-to-Date Management<br/>of Risk Factors</b><br><i>Ira B. Ehrlich, M.D.</i><br><b>Rehabilitation<br/>After Stroke</b><br><i>Marjorie L. Keely, M.D.</i><br><b>Open Discussion</b><br>moderator<br><i>John R. Green, M.D.</i> | <b>Viral Hepatitis</b><br><i>James W. Mosley, M.D.</i><br><br>moderator<br><i>Luis S. Tan, M.D.</i> | <b>Evaluation and<br/>Treatment of<br/>Obstructive Jaundice</b><br><br><b>General Approach<br/>to Jaundice - When<br/>to Consider Surgery</b><br><i>George E. Burdick, M.D.</i><br><b>Radiological Tools In the<br/>Evaluation of Jaundice</b><br><i>Avi Ben-Ora, M.D.</i><br><b>Endoscopic Retrograde<br/>Cholangiopancreato-<br/>graphy</b><br><i>George E. Burdick, M.D.</i><br><b>Non-Surgical Techniques<br/>in Treatment of<br/>Obstructive Jaundice</b><br><i>Richard A. Kozarek, M.D.</i><br><br>moderator<br><i>James J. Berens, M.D.,<br/>F.A.C.S.</i> |
| 9:30 A.M.<br>to<br>10:00 A.M.  |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 10:00 A.M.<br>to<br>10:30 A.M. |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



|                                |                                                         |                                                                                    |                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                    |
|--------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:30 A.M.<br>to<br>11:00 A.M. | Recess - Visit Exhibits                                 | Recess - Visit Exhibits                                                            | Recess - Visit Exhibits                                                                                                                                                                                                                                                                                                  | Recess - Visit Exhibits                                                                                                                                                                            |
| 11:00 A.M.<br>to<br>11:30 A.M. | ↓<br>↓<br>↓<br>↓<br>↓                                   | <b>Recognition &amp; Treatment of Alcoholism</b><br><i>Thomas E. Bittker, M.D.</i> | <b>Acute Monoradiculopathy Secondary to Unilateral Facet Hypertrophy</b><br><i>presenter</i><br><i>Arden F. Reynolds, M.D.</i><br><i>co-authors</i><br><i>Philip R. Weinstein, M.D.</i><br><i>Richard D. Wachter, M.D.</i><br><i>moderator</i><br><i>Lawrence Z. Stern, M.D.</i>                                         | <b>Surgical Approach to Jaundiced Patient</b><br><i>Wm. P. Longmire, Jr., M.D., F.A.C.S.</i><br><br><i>moderator</i><br><i>James J. Berens, M.D., F.A.C.S.</i>                                     |
| 11:30 A.M.<br>to<br>12 Noon    |                                                         |                                                                                    | <b>Microsurgical Repair of Peripheral Nerve Injuries</b><br><i>presenter</i><br><i>Philip R. Weinstein, M.D.</i><br><i>co-authors</i><br><i>Arden F. Reynolds, M.D.</i><br><i>Jack H. Dunn, M.D.</i><br><i>Wm. J. Casey, M.D.</i><br><i>Donald Speer, M.D.</i><br><i>moderator</i><br><i>Timothy R. Harrington, M.D.</i> | <b>Panel Participants:</b><br><i>Wm. P. Longmire, Jr., M.D., F.A.C.S.</i><br><i>Avi Ben-Ora M.D.</i><br><i>Richard A. Kozarek, M.D.</i><br><br><i>moderator:</i><br><i>George E. Burdick, M.D.</i> |
|                                | <b>South Court Room #1 &amp; 2</b>                      |                                                                                    | <b>Grande Ballroom #A, B, C, D, E, F, G,</b>                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                    |
| 12 Noon                        | Arizona Chapter American College of Surgeons - Luncheon |                                                                                    | Exhibit Breakdown #A - E                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                    |

## Scientific Assembly Committee

responsible for all Annual Meeting Arrangements



**Suresh C. Anand, M.D., Chairman**

Earl J. Baker, M.D.  
 Floyd K. Berk, M.D.  
 William W. Bohnert, M.D.  
 George E. Burdick, M.D.  
 W. Scott Chisholm, Jr., M.D.  
 John T. Clymer, M.D.  
 Joel G. Cohen, M.D.  
 Boyden L. Crouch, M.D.  
 Joseph A. Dupont, M.D.  
 Timothy R. Harrington, M.D.  
 Thomas F. Hartley, M.D.  
 Stuart I. Holtzman, M.D.  
 James M. Hurley, M.D.  
 Clyde W. Kurtz, M.D.  
 Phillip Levy, M.D.  
 Luis S. Lisboa, M.D.  
 Peter Mao, M.D.  
 J. Daniel Morris, M.D.  
 M. Herbert Nathan, M.D.  
 William S. Nevlin, M.D.  
 Alex Newman, M.D.  
 John E. Oakley, M.D.

**Charlotte Richards**

Neopito L. Robles, M.D.  
 Marvin C. Schnelder, M.D.  
 Richard A. Silver, M.D.  
 Donald P. Speer, M.D.  
 Lawrence Z. Stern, M.D.  
 Luis S. Tan, M.D.  
 Jerome H. Targovnik, M.D.  
 Wilber C. Voss, M.D.  
 Donald J. Ziehm, M.D.

**Golf Tournament Chairman**  
 Marvin C. Schnelder, M.D.

**Tennis Tournament**  
**Co-Chairmen**  
 Dr. & Mrs. Anthony T. Yeung

**Six Mile Fun Run**  
**Chairwoman**  
 Mrs. Joseph (Helen) Hanss

This program is approved for 15 hours of category I CME credit toward the Arizona Medical Association Certificate in Continuing Medical Education.

The program is acceptable for 15 hours by the American Academy of Family Physicians.

## Guest Speakers

**AVI BEN-ORA, M.D.**  
Scottsdale

**THOMAS E. BITTKER, M.D.**  
Phoenix

**GEORGE E. BURDICK, M.D.**  
Phoenix

**EDWARD BYRNE-QUINN, M.D.**  
Tucson

**DOSCIA CARLSON, PH.D.**  
Phoenix

**L. PHILLIP CARTER, M.D.**  
Phoenix

**W. SCOTT CHISHOLM, JR., M.D.**  
Phoenix

**ROBERT E. COTTOR, M.D.**  
Phoenix

**SHARON COTTOR, M.S.W.**  
Phoenix

**ROBERT M. CROWELL, M.D.**  
Phoenix

**JOHN J. DEMAKAS, M.D.**  
Phoenix

**ROBERT M. DRYDEN, M.D.**  
Tucson

**IRA B. EHRLICH, M.D.**  
Phoenix

**MICHAEL D. ELLIS, M.S.**  
Director, Texas State Poison Center  
University of Texas Medical Branch  
Galveston, Texas

**MORTIMER T. ENRIGHT, M.A.T.**  
Director, Speakers and  
Leadership Programs  
American Medical Association

**ROBERT B. FETTER, PH. D.**  
Tempe

**GERALDINE L. FREEMAN, M.D.**  
Tucson

**RICHARD M. FRIEDENBERG, M.D.**  
Chairman, Dept. of  
Radiological Sciences  
University of California  
Irvine Medical Center  
Orange, California

**VICTOR R. FUCHS, Ph.D.**  
Professor of Economics  
Stanford University  
Palo Alto, California

**THOMAS ROBERT GLATTER, M.D.**  
Kansas City, Missouri

**CELIA HALAS, PH.D.**  
Phoenix

**DUANE HOLLORAN, PH.D.**  
Phoenix

**DENNIS H. HARRIS, M.D.**  
Scottsdale

**HOWARD W. HIATT, M.D.**  
Dean  
Harvard School of Public Health  
Boston, Massachusetts

**JOHN A. HODAK, M.D.**  
Phoenix

**MARJORIE L. KEELY, M.D.**  
Phoenix

**CHARLES M. KERR, M. D.**  
Tucson

**RICHARD A. KOZAREK, M.D.**  
Phoenix

**ROBERT L. LARSON, M.D.**  
President, The American Orthopaedic  
Society for Sports Medicine  
Eugene, Oregon

**WILLIAM P. LONGMIRE, JR., M.D.,  
F.A.C.S.**  
Chairman, Dept. of Surgery  
University of California Medical Center  
Los Angeles, California

**ALAN H. MALLACE, M.D.**  
Sun City

**RICHARD S. MATERSON, M.D.**  
Houston, Texas

**ANTHONY MITTEN, J.D.**  
Phoenix

**JAMES W. MOSLEY, M.D.**  
Professor of Medicine  
University of Southern California  
School of Medicine  
Downey, California

**JOHN E. OAKLEY, M.D.**  
Prescott

**STEPHEN A. PIERCE, M.D.**  
Phoenix

**ARDEN F. REYNOLDS, M.D.**  
Tucson

**WILLIAM C. SCOTT, M.D.**  
Tucson

**VOLKER K.H. SONNTAG, M.D.**  
Phoenix

**RONALD P. SPARK, M.D.**  
Tucson

**MRS. DONALD R. (MARTY) SQUIRE**  
Phoenix

**RICHARD A. THOMPSON, M.D.**  
Phoenix

**JOHN E. TYRRELL, M.D.**  
Manchester, Iowa

**CECIL C. VAUGHN, M.D.**  
Phoenix

**MRS. JOHN F. (MARY ELLEN)  
VAUGHN**

President, AMA Auxiliary

**PHILIP R. WEINSTEIN, M.D.**  
Tucson

**ANDREW WHELTON, M.D.**  
Assoc. Professor of Medicine  
The Johns Hopkins Hospital  
Baltimore, Maryland

## Scientific Exhibits

A wide range of scientific and commercial exhibits awaits registrants at the 90th Annual Meeting. These exhibits will be located in the Grande Ballroom and can be viewed from noon Friday through noon Sunday. Plan to spend some time in the exhibit area to see the more than 40 commercial exhibits and the following scientific exhibits.

**Emergency Medicine and Poisoning**  
Donald B. Kunkel, M.D.

**Understanding Carpal Fractures  
and Dislocations**  
Mohy Zikri, M.D.

**Computer Assisted Patient Care  
In Office Practice**  
Mark Dambro, M.D.

**Conjugated Telepaque In the Bowel As An Aid In  
Diagnosis of Biliary Tract Disease**  
M. H. Nathan, M.D.  
Alex Newman, M.D.

**The Knee - A Group Approach - Advances In  
Diagnosis and Treatment Emphasizing the  
Need for Close Cooperation by Orthopaedic  
Surgeon and Registered Physical Therapists**  
Saul N. Schreiber, M.D.  
Mort Lewis, R.P.T.  
Kent Wenrich, R.P.T.

**Dramatic Hilar and Medlateral  
Coccidioidomycosis: Differential Diagnosis and  
Prognostic Implications**  
William W. Horsley, M.D.  
John C. Bjelland, M.D.  
Glenn C. Cook, M.D.

**Percutaneous Transluminal Angioplasty of  
Coronary and Peripheral Arteries**  
Michael H. Vawter, M.D.

**Ambulatory Nutritional Support**  
Robert B. Gilsdorf, M.D.  
Marcia Barry, R.N.  
Andrea Cartmil, R.N.E.T.  
Mason Cobb, M.D.



# ArMA Auxiliary Annual Convention Program at a Glance

**Wednesday, May 20, 1980**

| Wednesday                   | South Court Room<br>#1 & 2 | North Court Room<br>#1 & 2 | Grande Ballroom<br>#A, B, C, D, E, F, G                                                                     | Pointe of View<br>#A, B, C, D |
|-----------------------------|----------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------|
| 10:00 A.M.<br>to<br>12 Noon |                            |                            | ArMA House of Delegates<br>1st Session - #E, F & G<br>ArMA Auxiliary<br>President's Address<br>Joyce Newman |                               |

**Thursday, May 21, 1981**

| Thursday                     | South Court Room<br>#1 & 2                                                                                 | North Court Room<br>#1 & 2                                                                                        | Grande Ballroom<br>#A, B, C, D, E, F, G | Pointe of View<br>#A, B, C, D |
|------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------------|
| 8:00 A.M.<br>to<br>4:00 P.M. | Registration — Convention Registration Area                                                                |                                                                                                                   |                                         |                               |
| 8:45 A.M.                    | Arts and Crafts Show set up - South Registration Area                                                      |                                                                                                                   |                                         |                               |
| 8:45 A.M.                    | Executive Committee<br>Meeting<br>#1                                                                       |                                                                                                                   |                                         |                               |
| 9:30 A.M.<br>to<br>12 Noon   |                                                                                                            | Annual Meeting<br>Memorial Service<br>Election of Officers<br>conducted by<br>Joyce Newman<br>#1 - 2              |                                         |                               |
| 12 Noon                      | Hospitality — Exhibit area #A - E                                                                          |                                                                                                                   |                                         |                               |
| 12:30 P.M.                   | Luncheon<br>#1 & 2                                                                                         |                                                                                                                   |                                         |                               |
|                              |                                                                                                            | "Speaking Effectively II"<br>Workshop<br>Mortimer T. Enright<br>Marty Squire<br>moderator<br>Connie Wry<br>#1 - 2 |                                         |                               |
| 6:00 P.M.                    | Tennis Tournament - The Village Tennis Club - 4444 E. Camelback Rd. - pre-registration required - \$10 Fee |                                                                                                                   |                                         |                               |

| Friday                                    | South Court Room<br>#1 & 2                                                                                                                                                                                            | North Court Room<br>#1 & 2 | Grande Ballroom<br>#A, B, C, D, E, F, G | Pointe of View<br>#A, B, C, D                                                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6:30 A.M.                                 | Six Mile Fun Run - Herberger Park #2 - North 20 Street & East Maryland Ave. - Phoenix<br>pre-registration required - \$7 Fee                                                                                          |                            |                                         |                                                                                                                                                                                                             |
| 8:00 A.M.<br>to<br>5:00 P.M.              |                                                                                                                                                                                                                       |                            | Hospitality<br>Exhibit Area<br>#A - E   |                                                                                                                                                                                                             |
| 8:00 A.M.<br>to<br>4:00 P.M.              | Registration — Convention Registration Area                                                                                                                                                                           |                            |                                         |                                                                                                                                                                                                             |
| 8:00 A.M.                                 |                                                                                                                                                                                                                       |                            |                                         | Pre-Workshop Coffee<br>(outside) #A & B                                                                                                                                                                     |
| 8:30 A.M.<br>to<br>12 Noon                |                                                                                                                                                                                                                       |                            |                                         | <b>"Facets of Communication<br/>Workshops"</b><br><i>ArMA &amp; Auxiliary<br/>Joint Program</i>                                                                                                             |
| 8:30 A.M.<br>to<br>10:10 A.M.             |                                                                                                                                                                                                                       |                            |                                         | <b>"Patient Communication"</b><br><i>Mortimer T. Enright<br/>Marty Squire<br/>#A &amp; B</i><br><b>"Parent-Teenager<br/>Communication"</b><br><i>Robert Cottor, M.D.<br/>Sharon Cottor, M.S.W.<br/>#C</i>   |
| 10:20 A.M.<br>to<br>12 Noon               |                                                                                                                                                                                                                       |                            |                                         | <b>"Persuasive Communication<br/>&amp; Listening Skills"</b><br><i>Mortimer T. Enright<br/>Marty Squire<br/>#A &amp; B</i><br><b>"Communication in<br/>Marriage"</b><br><i>Charles M. Kerr, M.D.<br/>#D</i> |
| 12 Noon                                   | Auxiliary Reception - North & South Verandas                                                                                                                                                                          |                            |                                         |                                                                                                                                                                                                             |
| 12:30 P.M.                                | <b>Auxiliary Luncheon</b><br>Installation of Officers<br>conducted by<br><i>Mary Ellen Vaughn,<br/>President, AMA Auxiliary</i><br>Fashion Show                                                                       |                            |                                         |                                                                                                                                                                                                             |
| 2:30 P.M.                                 |                                                                                                                                                                                                                       |                            |                                         | <b>Post-Convention<br/>Board Meeting</b><br>conducted by<br><i>Janet Hoffmann<br/>#B</i>                                                                                                                    |
| 7:00 P.M.<br>to<br>8:00 P.M.<br>8:00 P.M. | Annual Reception - <b>South Garden</b><br><i>Music by Boyden Crouch, M.D. on his calliope</i><br><br><i>"An International Affair" - Dining and dancing to the strains of the V.I.P.s - Grande Ballroom #F &amp; G</i> |                            |                                         |                                                                                                                                                                                                             |



| Saturday                       | South Court Room<br>#1 & 2                                                                                                                                             | North Court Room<br>#1 & 2 | Grande Ballroom<br>#A, B, C, D, E, F, G | Pointe of View<br>#A, B, C, D                                                                                                                 |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 7:00 A.M.<br>to<br>8:45 A.M.   | ArMA Program<br>Breakfast Panel<br><b>Presentation:</b><br><i>National Preparedness</i><br><i>Howard Hiatt, M.D.</i><br><i>moderator</i><br><i>Earl J. Baker, M.D.</i> |                            |                                         |                                                                                                                                               |
| 8:00 A.M.                      |                                                                                                                                                                        |                            |                                         | Hospitality<br>Exhibit area<br><b>#A - E</b>                                                                                                  |
| 8:00 A.M.                      | Registration — Convention Registration Area                                                                                                                            |                            |                                         |                                                                                                                                               |
| 8:15 A.M.                      |                                                                                                                                                                        |                            |                                         | Pre-Workshop Coffee<br>(outside) <b>#A &amp; B</b>                                                                                            |
| 8:45 A.M.<br>to<br>12:30 P.M.  |                                                                                                                                                                        |                            |                                         | <b>"Facets of Communication"</b><br><b>Workshops</b><br><i>ArMA &amp; Auxiliary</i><br><i>Joint Program</i>                                   |
| 8:45 A.M.<br>to<br>10:30 A.M.  |                                                                                                                                                                        |                            |                                         | <b>"Sudden Death of<br/>Your Physician<br/>Spouse - Now What?"</b><br><i>Celia Halas, Ph.D.</i><br><i>Anthony Mitten, J.D.</i><br><b>#A</b>   |
| 10:45 A.M.<br>to<br>12:30 P.M. |                                                                                                                                                                        |                            |                                         | <b>"Controlling Stress"<br/>and Biofeedback<br/>Demonstration</b><br><i>Duane Holloran, Ph.D.</i><br><i>Dosia Carlson, Ph.D.</i><br><b>#B</b> |

## Convention Committee

Mrs. Donald A. (Jeanne) Davis  
*Co-chairman*

Mrs. Ted (Toni) Stuart  
*Co-chairman*

Mrs. Albert (Kay) Andrews  
*Luncheon*

Mrs. Ernst E. (Sally) Born  
*Finance*

Mrs. David (Betty) Cauble  
Mrs. Anthony (Eileen) Yeung  
*Hospitality*

Mrs. Donald A. (Jeanne) Davis  
Mrs. Ted (Toni) Stuart  
*CE*

Mrs. Sheldon (Karen) Epstein  
*Arts and Crafts Show*  
*"Creative Moments"*

Mrs. Joseph (Helen) Hanss  
*6 Mile Fun Run*

Mrs. Franklin D. (Trish) Loffer  
*Registration*

Mrs. Randal J. (Kathie) May  
*Fashion Show*

Mrs. Marvin (Annette) Schneider  
*Photographer*

Mrs. Herman F. (Anneke) Van Den  
Broeck  
*Exhibition*

# ArMA Auxiliary

## Board of Directors

### 1980-81



**Mrs. George T. (Janet) Hoffmann**  
President  
1981-82



**Mrs. Lynn David (Joyce) Newman**  
President  
1980-81

**Mrs. L. David (Joyce) Newman**  
*President*

**Mrs. John T. (Eloise) Clymer**  
*Director - 1980-81*

**Mrs. George T. (Janet) Hoffmann**  
*President-Elect*

**Mrs. Orlin V. (Connie) Wry, Jr.**  
*Director - 1980-82*

**Mrs. Richard (Mary Lee) Collins**  
*First Vice-President*

**Mrs. Joe (Sue) McNally**  
*Director - 1979-81*

**Mrs. Al (Anita) Rosenblatt**  
*Second Vice-President*

**Mrs. Leslie (Jane) Taylor**  
*Corresponding Secretary*

**Mrs. Harry (Ann) Tennant**  
*Recording Secretary*

**Mrs. Herman (Anneke) Van Den Broeck**  
*Historian*

**Mrs. Richard (Carolyn) Morgan**  
*Treasurer*

**Mrs. Howard (Mary Eleanor) Holmes**  
*Parliamentarian*

## Convention Co-chairman

**Mrs. Ted (Toni) Stuart**  
**Mrs. Donald A. (Jeanne) Davis**

## Guest

**Mrs. John F. (Mary Ellen) Vaughan**  
**AMA Auxiliary President**





# CREATIVE MOMENTS '81

## ARTS & CRAFTS SHOW APPLICATION

### INSTRUCTIONS:

**Complete form and mail, BY MAY 11, 1981, to:**

Mrs. Karen Epstein  
5231 Via Buena Vista  
Paradise Valley, AZ 85253

**Entries are limited to:**

Adults ..... Three per person.  
Youth (13 years through 17 years) ..... Two per person.  
Child (12 years and under) ..... Two per person.

**Deliver entries for display to:**

The Pointe Resort Grande Ballroom, 7677 N. 16th Street, Phoenix, starting at 12 Noon on Thursday May 21, 1981.

Items will be on display Friday, Saturday and Sunday until noon, May 24, 1981.

**Entries MUST be picked up between 12 Noon and 1 P.M. on Sunday, May 24, 1981.**

### Registration Form:

I would like the following items in the **Creative Moments '81** to be held May 22-24, 1981 at The Pointe Resort, 7677 North 16th Street, Phoenix, Arizona.

| Describe In Detail | Exhibited<br>Professionally<br>yes or no | Kit<br>yes or no | Own Design<br>yes or no | Check One |       |       |
|--------------------|------------------------------------------|------------------|-------------------------|-----------|-------|-------|
|                    |                                          |                  |                         | Child     | Youth | Adult |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |
|                    |                                          |                  |                         |           |       |       |

(One Form Per Person Please)

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_

For Further Details Contact: Mrs. Karen Epstein  
5231 Via Buena Vista  
Paradise Valley, Arizona 85253  
Phone: 948-6777

The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

## BOARD OF DIRECTORS

A meeting of the Board of Directors of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Saturday, January 10, 1981, a quorum being present, convened at 10:05 a.m., John T. Clymer, M.D., President and Chairman, presiding.

### Welcoming Remarks

Dr. Clymer, on behalf of the entire Board, extended a welcome to the newest Board member, Dr. DeBenedetti, as well as to the newly elected county society presidents, Dr. Lundy and Dr. Hoffmann, and all other guests attending the meeting.

### Auxiliary Activities Report

Joyce Newman, as President of the State Auxiliary, updated the members on various items of interest, including the overwhelming response to the "Is He Sick" brochures and the dissemination of the "Early Start to Good Health" kits in the school systems throughout the state. Mrs. Newman touched briefly on the many ongoing projects being conducted by the component society auxiliaries and the fact that planning for the Auxiliary portion of the 1981 Annual Convention was well underway, to be highlighted once again by a joint session for physicians and their spouses.

### Mesa Public Schools

Letter of appreciation from Mesa Public Schools for auxiliary interest and help dated November 3, 1980. *Received.*

### Request for Representative

The Board reviewed Mrs. Newman's letter of September 29, 1980, requesting permission from ArMA to name an Auxiliary representative to serve on the American School Health Organization constituent group in Arizona.

*It was moved and carried to grant permission to the Arizona Medical Association Auxiliary, Inc. to name one of its members to serve on the American School Health Organization constituent group in Arizona.*

Additionally, the Board determined that a study of the national American School Health Organization be made a

determine the advisability of possibly naming a representative from ArMA to serve, in addition to an Auxiliary member.

## Board of Directors

### Western Physicians Purchasing Association

Dr. Kahle, President of the WPPA, updated the Board on the current status of the organization, advising that with the publication of a new catalog and the hiring of a new Executive Director, WPPA promises to become an even more functional organization during 1981. Mr. Bill Upton, from Ogden, Utah, was introduced to members of the Board and briefly reviewed his background, his enthusiasm about the WPPA, and some of the initially planning to be put into effect by reason of his new role as the director.

### Recommendations for AMA Appointments

The members reviewed and discussed the AMA's November 17th request for recommendations for appointments to the Council on Medical Education and various committees and

*It was moved and carried to allow the Executive Committee to prepare and submit recommendations to the AMA for appointment to the Council on Medical Education and various committees, based upon recommendations previously made where inquiry indicates a willingness that such recommendation be resubmitted or an indication of interest by a physician member in being recommended for appointment for the first time.*

### Arizona Perinatal Trust

The Board reviewed a request dated November 14th for the granting of an extension of time within which to select additional Trustees for the Arizona Perinatal Trust and Dr. Scott, as one of the named Trustees, advised the membership that the request was precipitated by the recent resignation of the Director of the Trust and the time element which had been devoted to the hiring of a new Director.

*It was moved and carried to amend the original declaration of Trust to provide for 180 days, in lieu of the original 60 days, within which to designate additional trustees to the Board of Trustees of the Arizona Perinatal Trust and that the officers of the Arizona Medical Association Foundation, Inc. are authorized to execute the amending documents required to bring about such extension.*

### Statewide Health Coordinating Council

Governor Babbitt's acknowledgement of the recommendation of Louis C. Kossuth, M.D. for appointment to the Statewide Health Coordinating Council dated October 21, 1980. *Received.*

## Liaison Committee on Medical Education

Acknowledgement of Judge Sandra D. O'Connor's appointment to the Liaison Committee on Medical Education as recommended by ArMA. *Received.*

### Endowment Fund Proposal

With the recent passing of a prominent Arizona physician, Dr. Kurtz addressed the Board regarding the consideration by the Association of developing an endowment fund from other than dues monies, which fund would be ongoing and not restricted by name or amount.

*It was moved and carried to refer the concept of an endowment fund to the Benevolent and Loan Fund Committee for its review and the development of initial planning and criteria for the establishment of such a fund, with a presentation being made by that committee to this Board prior to any final action being taken on the subject.*

### BOMEX Vacancies

The Board was apprised that within the next few months three vacancies would occur on the Board of Medical Examiners and, as in the past, the Governor was seeking recommendations for appointments to that Board.

*It was moved and carried that Ruben Acosta, M.D., whose term on the Board of Medical Examiners would expire on February 26, 1981, be contacted to see if he would be willing to serve another term if reappointed. Should Dr. Acosta's response be in the affirmative, he would be among the recommendations to be submitted to the Governor by the Association. Additionally, it was determined that a representative of the Association meet with the Governor's staff to seek assistance as to which physicians in the state might be favorably considered by the Governor and those names reviewed by the Executive Committee, which committee would ultimately determine and submit final recommendations for such appointments to Governor Babbitt.*

## Executive Committee

### Ratification of Minutes

*It was moved and carried to approve and ratify the minutes of the meetings of the Executive Committee held on October 4, 1980, November 21, 1980 and December 19, 1980*

### Membership Classification Change Approved

#### Graham County Medical Society

1. Fred W. Knight, M.D. - Active to Associate -Account Retired - Dues Exempt - Effective 1/1/81.

#### Maricopa County Medical Society

1. Sheldon Epstein, M.D. - Active to Associate -Account Residency - Dues Exempt - Effective 1/1/81.



2. Clyde E. Flood, M.D. - Active Over 70 - Account Age - Dues Exempt - Effective 12/9/80.

3. Lester E. Kron, M.D. - Active to Associate - Account Illness - Dues Exempt - Effective 1/1/81.

4. Sam M. Mackoff, M.D. - Active to Associate - Account Illness - Dues Exempt - Effective 1/1/81.

5. Paul E. McFarland, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81.

6. E. Payne Palmer, Jr., M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

7. Paul V. Palmer, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81. 8. R. Winfield Rosenquist, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

9. Paul L. Singer, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81.

10. Morris Stern, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81.

11. L. L. Tuveson, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81.

#### **Navajo County Medical Society**

1. Pushpa Chandwani, M.D. - Active to Affiliate - Account Out of State - Dues Exempt - Effective 1/1/81.

#### **Pima County Medical Society**

1. William B. Allen, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81.

2. Gerrit Dangremond, M.D., - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81.

3. Mayer Hyman, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81.

4. Jackman Pyre, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81.

5. A. K. Hansen, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

6. W. Stanley Kitt, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

7. Darwin W. Neubauer, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

8. George Fraser, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

9. Frank D. Morrison, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

#### **AMA Delegation Report**

#### **Final Report of Arthur V. Dudley, Jr., M.D.**

The final report of Dr. Dudley as one of the Delegates to the AMA dated December 15, 1980. *Received.*

After reviewing Dr. Dudley's final

report regarding the San Francisco interim meeting,

*It was moved unanimously carried that the Association convey its thanks and appreciation to Dr. Dudley for the time and energies expended during his many years of service to the Association as a member of the Arizona Delegation to the AMA.*

#### **Report of Other Delegates and Alternate Delegates**

Drs. Chisholm, Curtis, Sattenspiel and Perry addressed the Board briefly on various items of interest and highly recommended the reading of an article in the latest issue of *AMA News* which contained highlights on the AMA House of Delegates activities.

#### **Benevolent and Loan Committee**

Letters from Madeleen M. Sardick, Theony Le, William Horace Noland, James P. Arthur and Sandra R. Hernandez conveying thanks for scholarships received from ArMA. *Received.*

#### **County/State Unified Membership, Ad Hoc Committee on**

*It was moved and carried to confirm the appointments of Kenneth A. Dregseth, M.D., Morton Fuchs, M.D., Ronald S. Gardner, M.D., Richard L. Collins, M.D., Christopher T. Maloney, M.D., James F. Martin, M.D., Daniel L. Neel, M.D., Edward Sattenspiel, M.D. and Neil O. Ward, M.D. as the members of the Ad Hoc Committee on County/State Unified membership, with Dr. Ward to serve as Chairman.*

#### **Long Range Planning Committee, Ad Hoc**

##### **Activities Report**

Dr. Oakley, Chairman of the Ad Hoc Long Range Planning Committee, reported to the Board regarding the activities of the committee in drafting a preliminary set of goals for the Association, which would be considered during a workshop to be held in the near future for purposes of developing objectives for attainment of those goals. Dr. Oakley explained that the committee was using the Colorado long range plan as a guideline for the time frame and basic structure to be followed in accomplishing the charge to it by the Association.

##### **Goals**

Preliminary Draft of Goals promulgated by the Ad Hoc Long Range Planning Committee. *Received.*

##### **Legislative Committee**

*It was moved and carried confirming the appointment of Lawrence Green, M.D. as a member of the Legislative Committee for the term 1980-83.*

#### **Medical Education Committee**

Acknowledgement of the appointment of Louis J. Kettel, M.D., Jack M. Layton, M.D. and Walter Fairfax, M.D. to AMA Task Forces to Consider Future Directions for Medical Education. *Received.*

#### **Physician Rehabilitation Committee**

##### **Request for Change of Name**

After reviewing the November 18th request of the Physician Rehabilitation Committee to change its name to "Physician's Health Committee" and listening to the comments of Dr. Bittker, Chairman of that committee, as to the reasons for such request,

*It was moved and carried to accept the recommendation from the Physician Rehabilitation Committee that the name of that Committee be changed to "Physician's Health Committee" and it was determined that the appropriate resolution be prepared for submission by the Board of Directors to the House of Delegates during its Annual Meeting in May of 1981 which would, in fact, accomplish the required change in the Articles of Incorporation and Bylaws of the Association.*

##### **Statement of Philosophy of Treatment of Alcoholism in Physicians**

The Board was provided a copy of a Statement of Philosophy of Treatment of Alcoholism in Physicians adopted by the Physician Rehabilitation Committee (Physician's Health Committee) on November 18th and informed by Dr. Bittker of the feelings of that committee for the need of the Association to officially endorse and adopt this statement. Following a lengthy discussion.

*It was moved and carried that the Arizona Medical Association endorses and adopts the following as its statement of Philosophy of Treatment of Alcoholism in Physicians:*

##### *"Statement of Philosophy of Treatment of Alcoholism in Physicians"*

*The Arizona Medical Association recognizes alcoholism to be a primary, chronic and potentially disabling disease with pathodynamic peculiarities necessitating specific and knowledgeable treatment in order to prevent advancement to the state of irreversible impairment of professional, medical, psychological and/or social function.*

*"Therefore, it shall be the commitment of this Association to address in an honest and unstigmatized manner, the victims of this insidious disease at the earliest possible recognition and to facilitate obtainment of appropriate treatment/assistance in accord with the 'Statement of Treatment of Alcoholism'*



of the National Council on Alcoholism and the American Medical Society on Alcoholism, 1980.

#### "Statement of Treatment for Alcoholism" "I General Definition of Treatment"

Treatment for alcoholism is the use of any planned, intentional intervention in the health, behavior, personal and/or family life of an individual suffering from alcoholism, designed to enable the affected individual to achieve and maintain sobriety, physical and mental health, and maximum functional ability.

#### "II Components of Treatment"

Treatment for alcoholism should include: all or a combination of the following:

1. A thorough physical and psychosocial evaluation.

2. Detoxification; that is, the achievement of a state free of both alcohol and sedative drugs. Detoxification may be accomplished on an inpatient or outpatient basis, and with or without the use of psychoactive drugs, depending on the physical psychological and social needs of the patient.

3. Counseling, including education on: the nature of alcoholism as a disease; the need for long-term abstinence; the need for a program of rehabilitation, including family involvement; the dangers of addiction to other drugs, and other related issues.

4. Medical treatment of the physical concomitants and complications of alcoholism, including attention to nutritional needs.

5. Psychological assistance for the patient and family through psychotherapy and/or counseling, along with involvement in self-help groups, depending on the needs and characteristics of the patient and the family. This assistance is aimed at sustaining motivation for sobriety, and helping the patient find alternative healthier ways of coping with personal, work, family and social problems without dependence on alcohol. It is aimed at helping the family develop healthier, more satisfying patterns of interaction which will in turn facilitate and reinforce the patient's sobriety. This includes help for the children of patients with alcoholism aimed also at prevention of the disease in this high-risk group. The prescription of a deterrent drug or aversive counter-conditioning may accompany this phase of treatment as a motivational aid.

6. Treatment of any psychiatric illness which may accompany the alcoholism, such as severe depression, neurotic or psychotic conditions, or sexual disorders.

7. Referral for help with social, legal, child care, vocational, spiritual or other associated problems to appropriate

community resources.

8. Long-term follow-up. Since alcoholism is a chronic disease, treatment is generally conducted as a planned program with a prolonged follow-up, or on an open-ended basis.

#### "III. Length of Treatment"

Depending on the age of the patient, the stage of illness, the degree of associated physical and psychiatric disability, and the extent of social, family, vocational and legal problems, the length of treatment and rehabilitation process will vary widely from case to case. In all cases, however, long-term availability of social supports and medical supervision are needed because of the chronic nature of the illness and potential for relapse.

#### "IV. Treatment Settings"

Depending on the same combination of factors cited under Length of Treatment, the process of treatment may take place in one of a variety of settings or a combination of settings."

#### Confirmation of Appointments

It was moved and carried confirming the appointments of Louis E. Young, M.D. and Dean L. Gerstenberger, M.D. as members of the Physician Rehabilitation Committee for the terms 1980-83 and 1981-84, respectively.

#### Professional Committee

##### Rubella Immunity Statement

The Board reviewed a request from the Professional Committee dated December 22, 1980 regarding certain recommendations of the Department of Health Services on Rubella Immunity and, following discussion.

It was moved and carried that the recommendations of the Department of Health Services on Rubella Immunity as set forth in the December 22, 1980 letter of the Professional Committee, together with that committee's recommendation to this board, be referred back to the professional committee for further study and review.

##### Seat Belt Restraints

A recommendation from the Professional Committee that the Board and the Legislative Committee consider legislation regarding seat belt restraints for infants and children was reviewed and

It was moved and carried to recommend to the Legislative Committee that it again consider, during its deliberations regarding matters for the current legislative session, legislation for seat belt restraints for infants and children.

##### Definition of Death

The Board reviewed and discussed the Definition of Death prepared and submitted to it by the Professional Committee, together with its request for approval and dissemination to the

membership.

It was moved and carried to approve the "Definition of Death" developed by the Professional Committee, as set forth in Exhibit "A" attached hereto and by reference incorporated herein, and to disseminate that definition of Death to the membership by publication in "Arizona Medicine."

(See Editorial Section)

#### Care after Death

A proposed Joint Position Paper on "Care After Death" prepared and submitted by the Professional Committee was reviewed and, following a lengthy discussion,

It was moved and carried that the Board of Directors prepare and introduce to the House of Delegates during its meeting in May 1981 a resolution to establish a position on "Care After Death" and provide for the issuance of a position paper on that subject jointly with the Arizona Association of Homes for the Aged, The Arizona Association of Health Care Facilities and the Arizona Nurses Association.

Additionally, it was determined that due to the delay which would result in introducing a resolution on the subject to the House of Delegates that the other interested organizations be informed by letter of the Board's action.

#### Correspondence

Letter from Louis J. Kettel, M.D. dated October 16, 1980. Received.

#### SCIENTIFIC ASSEMBLY COMMITTEE

The meeting of the Scientific Assembly Committee of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona on Saturday, January 17, 1981 convened at 12:20 p.m., Suresh C. Anand, M.D., presiding.

##### 1981 Scientific Program Program Format

Revised program format. Received.

##### Local Paper Selection

The committee was advised that there were 14 half hour time slots within the program format to be filled by the selection of local papers and received and reviewed the recommendations of the subcommittee which had been appointed by the Chairman to review the applications which had been received. Following discussion,

it was moved and carried to accept the recommendations of the subcommittee and the following papers were selected for presentation during the 1981 Annual Convention.



1. *Surgical Management of Ocular Exposure in Thyroid Disease - A 10-Year Review* - Robert M. Dryden, M.D. and Marcos T. Doxanas, M.D.
2. *Transsphenoidal Hypophysectomy for Intractable Cancer Pain* - Volker K.H. Sonntag, M.D.
3. *Acute Monoradiculopathy Secondary to Unilateral Facet Hypertrophy* - Arden F. Reynolds, M.D., et al.
4. *Recognition and Treatment of Alcoholism* - Thomas E. Bittker, M.D.
5. *Immediate Skin Test Reactivity to Marijuana Pollen and Tobacco Leaf in Arizona* - Geraldine L. Freeman, M.D.
6. *Symposium: Modern Management of Stroke* - R. M. Crowell, M.D., et al.
7. *Outpatient Cardiac Catheterization and Arteriography: A 20-month Experience at the Arizona Heart Institute* - Edward B. Diethrich, M.D., et al.
8. *Surgical Management of Left Ventricular Aneurysm* - Cecil C. Vaughn, M.D., et al.
9. *Diagnosis and Management of Head Injury* - John J. Demakas, M.D., et al. (I&R)
10. *Neonatal Coccidioidomycosis* - Ronald P. Spark, M.D.
11. *Microsurgical Repair of Peripheral Nerve Injuries* - Philip R. Weinstein, M.D., et al.

It was the committee's intent that Dr. Bittker be granted one hour in which to present his paper on Recognition and Treatment of Alcoholism and that one and one-half hours be granted for the presentation of Symposium: Modern Management of Stroke, thus filling all 14 half-hour time slots.

#### **Scientific Exhibits**

The committee was advised that there were eight scientific exhibit spaces available and received and reviewed the recommendations of the subcommittee. *It was moved and carried to accept all but two of the recommendations of the subcommittee and the following exhibits were selected to be displayed during the 1981 Annual Convention.*

1. *Understanding Carpal Fractures and Dislocations* - Mohy Zikri, M.D. (I&R)
2. *Computer Assisted Patient Care in Office Practice* - Mark R. Dambro, M.D. (I&R)
3. *Conjugated Telepaque in the Bowel as an Aid in Diagnosis of Biliary Tract Disease* - M. H. Nathan, M.D. and Alex Newman, M.D.
4. *The Knee - A Group Approach - Advances in diagnosis and treatment emphasizing the need for close cooperation by orthopaedic surgeon and registered physical therapists* - Saul N. Schreiber, M.D., et al.
5. *Dramatic Hilar and Mediastinal*

*Coccidioidomycosis: Differential Diagnosis and Prognostic Implications* - William W. Horsley, M.D., et al.

6. *Percutaneous Transluminal Angioplasty of Coronary and Peripheral Arteries* - Michael H. Vawter, M.D.

7. *Erectile Impotence, psychological evaluation and surgical treatment* - Clyde W. Kurtz, M.D., et al.

8. *Ambulatory Nutritional Support* - R. B. Gilsdorf, M.D., et al.

The committee further discussed the applications entitled "Home Health Services - Under your direction" and "The Emergency/Primary Care Nurse Practitioner Program," which had been among the recommendations of the subcommittee and felt, that while they certainly were medically-related, they were not strictly scientific oriented.

*It was moved and carried that the presentors of scientific exhibit applications entitled "Home Health Services - Under your Direction" and "The Emergency/Primary Care Nurse Practitioner Program" be offered booths in the commercial exhibit area at a discounted rate of \$250.00, subject to approval by the Board of Directors.*

#### **Application Deadlines**

The committee discussed at great length the acceptance of paper and exhibit applications after the deadline established for submission and *it was moved and carried that, in future years, any applications for paper presentations or scientific exhibits received after the deadline established for submission of those applications would not be reviewed or considered by the committee during its selection on presentations or exhibits for that year's Annual Convention.*

#### **Moderators**

##### **Suggested Guidelines for Moderators**

A form of Suggested Guidelines for Moderators, together with a sample letter and a program Evaluation Form were received and reviewed by the committee.

##### **Selection of Moderators**

It was determined that moderators would be selected as in past years, i.e., solicitation for volunteers from the membership of the Scientific Assembly Committee, unless specific persons had already committed to participate in this fashion for a particular presentation.

Additionally, it was determined that subsequent to the selection of moderators those moderators would be contacted by Stuart I. Holtzman, M.D., in his role as Vice-Chairman of this committee, forwarding biographical information for the designated speaker and requesting the moderator to contact his speaker (by way of the sample letter) enclosing available informative materials about the Phoenix area and

advising that, should any special needs arise during their stay in Phoenix, ArMA staff will be available at the registration desk to assist them in any way possible.

#### **1981 ArMA Annual Meeting General Program**

Schedule of the 1981 ArMA Annual Meeting General Program. *Received.*

#### **1981 ArMA Auxiliary Convention Program**

**Schedule of the 1981 ArMA Auxiliary Convention Program.** *Received.*

Mrs. Newman addressed the committee relative to various aspects of their program, indicating among other things that the Auxiliary was attempting to have pamphlets printed for distribution in connection with the workshop entitled "Sudden Death of Your Physician Spouse - Now What?", the fact that they were attempting to establish CME credit for each of the various workshops and that the Auxiliary will have a staff of hostesses available during the convention to act as guides to various locations at The Pointe.

It was determined by the committee that the breakfast program "National Preparedness" should be carried as a part of the Auxiliary schedule as well as that of the Arizona Medical Association schedule and, while it seemed there was some confusion as to how to advertise the run sponsored by the Auxiliary, it was determined that the Auxiliary should promote the run in whatever fashion they deemed best.

#### **Workshop Attendees**

Mrs. Newman requested the committee's action relative to allowing nurses throughout the state to register and attend at no charge any of the communications workshops being held during the annual convention and, following discussion,

*It was moved and carried to recommend to the Board of Directors that the communications workshops being sponsored by the Auxiliary during the 1981 Annual Convention of the Arizona Medical Association be open to registration and attendance, at no charge, to the nurses throughout the State of Arizona.*

#### **Correspondence**

Board of Director's letter of 10/14/80 re: committee's recommendation regarding registration fees. *Received.*

#### **Other Business**

##### **Certificate of Appreciation**

The committee reviewed a draft of a Certificate of Appreciation which might be presented to all scientific exhibitors as recognition of the effort and time involved in preparing same and took the following action.

*It was moved and carried to approve*



the form certificate of appreciation presented to this committee and directing that such certificate be printed and presented to all individual participants in each of the scientific exhibits selected for display during the 1981 Annual Convention.

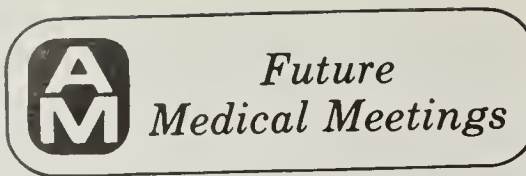
#### **Publication of Abstracts and Papers**

The committee discussed at great length the feeling that much valuable information was contained in many of the abstracts submitted with the paper applications and encouragement should be given by this committee for the publication of those abstracts in *Arizona Medicine*.

*It was moved and carried that the subcommittee of the Scientific Assembly Committee, following its review of paper applications and the abstracts contained therein, request publication of those abstracts in one issue of "Arizona Medicine" subject to permission of the author and the prerogative of the editor.*

#### **1983 Annual Meeting**

Much discussion centered around the location of the 1983 Annual Meeting, it being the consensus of the committee that it not be held at The Pointe and that other locations in the Phoenix area be studied and considered to see if they could meet the needs of the Association. Dr. Alex Newman was requested to develop suggestions for the committee's review at a subsequent and possibly a specially called meeting of the committee



The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program, (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

## **MARCH**

#### **Personal Instruction Course in Cataract Surgery**

March 11-14 and 25-28. The Eye Foundation, Phoenix, Az. Sponsor and Contact: The Eye Foundation, 421 N. 18th Street, Suite 105, Phoenix, AZ 85006. Approved for hour per hour category 1 credit.

#### **Chronic Obstructive Pulmonary Disease**

March 12, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, AZ. 85372. Approved for 1 hour of category 1 credit.

#### **Seventh Annual Maricopa County General Hospital Urological Seminar**

March 14 & 15, 1981. The Registry Resort, Scottsdale, AZ. Sponsor: Maricopa County General Hospital. Contact: James H. McDonald, M.D., Chief of Urology Service, MCGH, 2601 E. Roosevelt St., Phoenix, AZ 85008. Approved for 12 hours of category 1 credit.

#### **Thlrd Annual Symposium on Current Concepts in the Management of Acute and Chronic Pain**

Mrach 14 & 15, 1981. Camelback Inn, Phoenix. Sponsor: Maricopa County General Hospital. Contact: George Wallace, M.D., Program Director. MCGH, 2601 E. Roosevelt, Phoenix, AZ 85006.

#### **Newborn Parenteral Nutrition: Current Approaches**

March 16, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor and Contact: Desert Samaritan Hospital, 1400 South Dobson Road, Mesa, Arizona. Approved for 1 hour of category 1 credit.

#### **3rd Annual Conference on Adjuvant Therapy of Cancer**

March 18-21, 1981. Tucson Convention Center, Tucson. Sponsor: U of A College of Medicine. Contact: Cancer Center Division, Arizona Health Sciences Center, Tucson, AZ 85724. Approved for 25 hours of category 1 credit.

#### **Structural Family Therapy Series Psychosomatic Illness In Context**

March 20 & 21, 1980. Scottsdale Camelback Hospital, Scottsdale. Sponsor: Philadelphia Child Guidance Center and Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category one credit.

#### **Skl CME Program**

March 21-26, 1981. Vail, Colorado. Sponsor: Desert Samaritan Hospital. Contact: L.A. Rosati, M.D., CME Committee, Desert Samaritan Hospital, 1400 S. Dobson Rd., Mesa, AZ. Approved for 16 hours of category 1 credit.

#### **Common Office Psychiatric Problems**

March 25, 1981. Walter O. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memoiral Hospital. Contact: Office of CME, Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

#### **Advanced Cardiac Life Support Program (Recertification)**

March 26, 1981. Arizona Medical Association, Phoenix. Sponsor: ACEP, Arizona Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Turner, Arizona Medical Association, 810 West Bethany Home Rd., Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

#### **Arthroscopic Surgery of the Knee Seminar**

March 26-28, 1981. The Alamos Resort, Scottsdale, Arizona. Sponsor: Scottsdale Memorial Hospital. Contact: Program Chairman, 7300 Fourth Street, Suite 102, Scottsdale, AZ 85251. (602) 994-8797. Approved for 22 hours of category 1 credit.

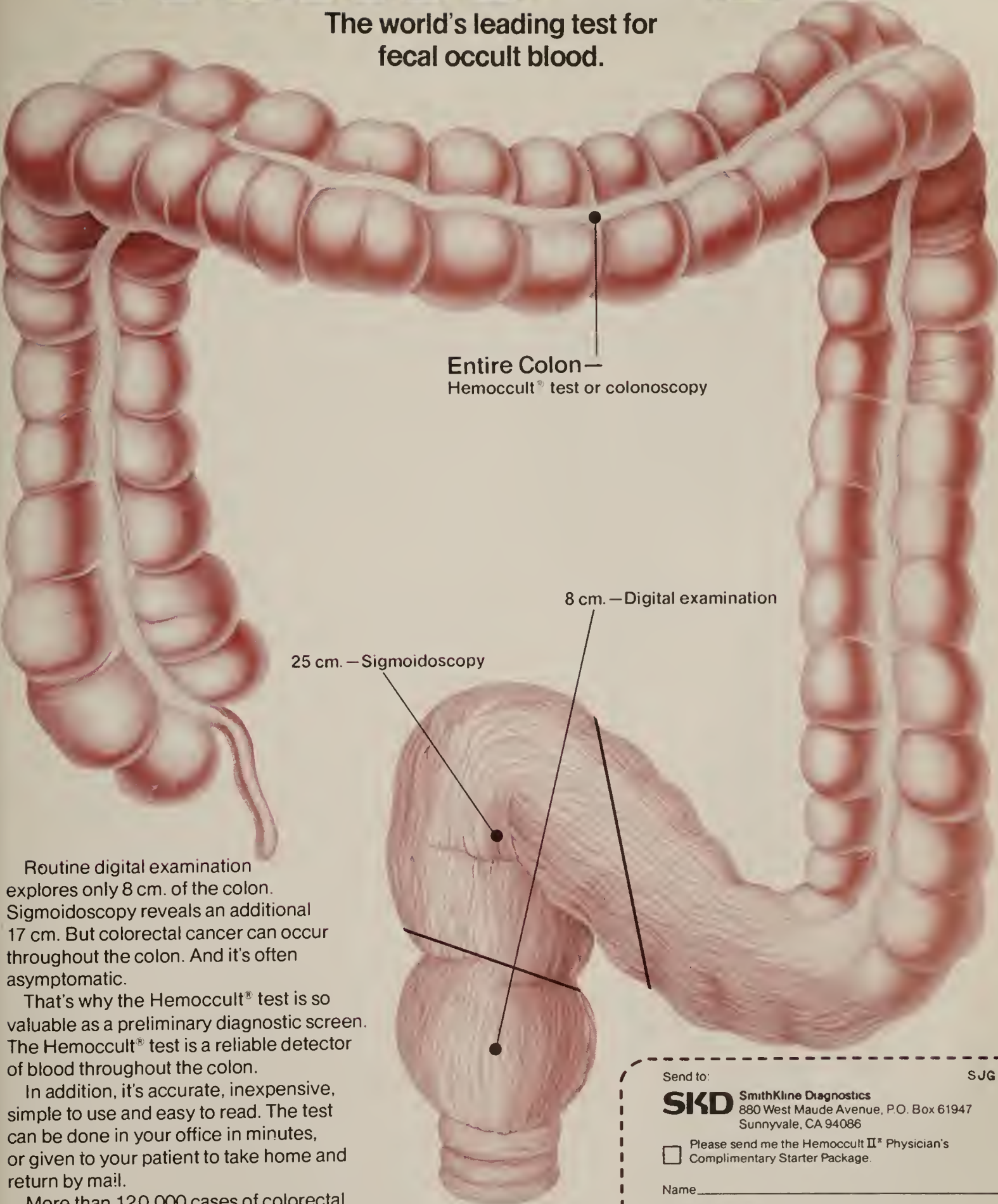
#### **Prophylactic Antibodies In Surgery**

March 27, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, Office of CME, 10401 Thunderbird Blvd., Sun City, AZ 85372. Approved for 1 hour of category credit.



# Hemoccult®

The world's leading test for  
fecal occult blood.



Entire Colon—  
Hemoccult® test or colonoscopy

8 cm.—Digital examination

25 cm.—Sigmoidoscopy

Routine digital examination explores only 8 cm. of the colon. Sigmoidoscopy reveals an additional 17 cm. But colorectal cancer can occur throughout the colon. And it's often asymptomatic.

That's why the Hemoccult® test is so valuable as a preliminary diagnostic screen. The Hemoccult® test is a reliable detector of blood throughout the colon.

In addition, it's accurate, inexpensive, simple to use and easy to read. The test can be done in your office in minutes, or given to your patient to take home and return by mail.

More than 120,000 cases of colorectal cancer will occur in the United States this year. The earlier they are diagnosed, the greater the chances for successful treatment. Send for your free Hemoccult® starter package, today.

**Hemoccult® is available through local distributors, nationwide.**

Send to:

SJG

**SKD** SmithKline Diagnostics  
880 West Maude Avenue, P.O. Box 61947  
Sunnyvale, CA 94086

☐ Please send me the Hemoccult II® Physician's Complimentary Starter Package.

Name \_\_\_\_\_

Medical Specialty \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_





# Acute pain is no laughing matter.

## The first prescription for the first days of acute pain **Empirin® $\bar{c}$ Codeine #3**

Each tablet contains: aspirin, 325 mg; plus codeine phosphate, 30 mg, (Warning — may be habit-forming). 

**For the millions of patients who need the potency of aspirin and codeine for their acute pain.**

The pain of fractures, strains, sprains, burns and wounds is at its peak during the first three to four days following trauma. The potent action of Empirin  $\bar{c}$  Codeine begins to work within 15 minutes of oral administration, an important advantage during this acute pain period. Empirin  $\bar{c}$  Codeine has unique bi-level action to attack pain at two critical points: peripherally at the site of injury and centrally at the site of pain awareness.

For the most effective dosage in treating acute pain, begin with ... two tablets of Empirin  $\bar{c}$  Codeine #2 or #3, every four hours. Titrate downward as pain subsides.

### **EMPIRIN® with Codeine**

**DESCRIPTION:** Each tablet contains aspirin (acetylsalicylic acid) 325 mg plus codeine phosphate in one of the following strengths: No. 2 — 15 mg, No. 3 — 30 mg, and No. 4 — 60 mg. (Warning — may be habit-forming.) 

**CONTRAINDICATIONS:** Hypersensitivity to aspirin or codeine.

#### **WARNINGS:**

**Drug dependence:** Empirin with Codeine can produce drug dependence of the morphine type and, therefore, has the potential for being abused. Psychic dependence, physical dependence, and tolerance may develop upon repeated administration of this drug and it should be prescribed and administered with the same degree of caution appropriate to the use of other oral, narcotic-containing medications. Like other narcotic-containing medications, the drug is subject to the Federal Controlled Substances Act.

**Use in ambulatory patients:** Empirin with Codeine may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery. The patient using this drug should be cautioned accordingly.

**Interaction with other central nervous system (CNS) depressants:** Patients receiving other narcotic analgesics, general anesthetics, phenothiazines, other tranquilizers, sedative-hypnotics, or other CNS depressants (including alcohol) concomitantly with Empirin with Codeine may exhibit an additive CNS depression. When such combined therapy is contemplated, the dose of one or both agents should be reduced.

**Use in pregnancy:** Safe use in pregnancy has not been established relative to possible adverse effects on fetal development. Therefore, Empirin with Codeine should not be used in pregnant women unless, in the judgment of the physician, the potential benefits outweigh the possible hazards.

#### **PRECAUTIONS:**

**Head injury and increased intracranial pressure:** The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions or a pre-existing increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the clinical course of patients with head injuries.

**Acute abdominal conditions:** The administration of Empirin with Codeine or other narcotics may obscure the diagnosis or clinical course in patients with acute abdominal conditions.

**Allergic:** Precautions should be taken in administering salicylates to persons with known allergies; patients with nasal polyps are more likely to be hypersensitive to aspirin.

**Special risk patients:** Empirin with Codeine should be given with caution to certain patients such as the elderly or debilitated, and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, prostatic hypertrophy or urethral stricture, peptic ulcer, or coagulation disorders.

**ADVERSE REACTIONS:** The most frequently observed adverse reactions to codeine include light-headedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients and some of these adverse reactions may be alleviated if the patient lies down. Other adverse reactions include euphoria, dysphoria, constipation, and pruritus.

The most frequently observed reactions to aspirin include headache, vertigo, ringing in the ears, mental confusion, drowsiness, sweating, thirst, nausea, and vomiting. Occasional patients experience gastric irritation and bleeding with aspirin. Some patients are unable to take salicylates without developing nausea and vomiting. Hypersensitivity may be manifested by a skin rash or even an anaphylactic reaction. With these exceptions, most of the side effects occur after repeated administration of large doses.

**DOSAGE AND ADMINISTRATION:** Dosage should be adjusted according to the severity of the pain and the response of the patient. It may occasionally be necessary to exceed the usual dosage recommended below in cases of more severe pain or in those patients who have become tolerant to the analgesic effect of narcotics. Empirin with Codeine is given orally. The usual adult dose for Empirin with Codeine No. 2 and No. 3 is one or two tablets every four hours as required. The usual adult dose for Empirin with Codeine No. 4 is one tablet every four hours as required.

**DRUG INTERACTIONS:** The CNS depressant effects of Empirin with Codeine may be additive with that of other CNS depressants.  
See WARNINGS.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709



## APRIL

### **Alzheimer's Disease Symposium**

April 4, 1981. Safari Resort, Scottsdale, Arizona. Sponsor: U of A College of Medicine, ASU College of Nursing, Arizona Nurses Assn. & ADRDA - Phoenix. Contact: John J. Mitchell, Alzheimer's Disease & Related Disorders Assn., Inc., P.O. Box 1948, Scottsdale, Arizona 85252. Phone: 994-5065. Approved for hour per hour category 1 credit.

### **3rd Annual Park City Environmental Health Conference: "Legal & Ethical Dilemmas in Occupational Health"**

April 7-10, 1981, Park City, Utah. Sponsor: U of A College of Medicine, Cntr. for Occupational Safety & Health; Univ. of Utah, Rocky Mountain Center for Occupational & Environmental Health; Univ. of Texas Health Sciences Center, School of Public Health. Contact: RMCOEH, Ms. K. Blotch, Bldg. 112, University of Utah, Salt Lake City, UT 84112. Approved for 26.5 hours of category 1 credit.

### **The Sportsman as a Patient**

April 7-10, 1981. Keystone Resort, Colorado. Sponsor: Office of the Surgeon General & US Army Medical Dept. & the 5502 Army Hospital, US Army Reserve, Aurora, Co. Contact: Symposium Coordinator, Edgar L. McWethy Jr., USAR Center, Bldg. 820, Fitzsimons Army Medical Center, Aurora, CO 80045. Approved for 10 hours of category 1 credit.

### **Current Treatment of the Elderly Psychiatric Patient**

April 22, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor: Walter O. Boswell Memorial Hospital. Contact: Office of CME, Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, AZ 85372. Approved for hour per hour category 1 credit.

### **Fourth Annual Arizona Emergency Medicine Symposium**

April 22-24, 1981. Safari Convention Center, Scottsdale, Arizona. Sponsor: American College of Emergency Physicians, Arizona Emergency Medical Systems, Inc., The Phoenix Chapter of Emergency Department Nurses Assn. and Arizona EMT Assn. Contact: Sherry Krentz, RN., Chairman, Arizona Emergency Medicine Symposium, AEMS, 301 W. Osborn Rd., Ste 112, Phoenix, AZ 85013.

### **Training in Structural Family Therapy Families with Adolescents**

April 24-25, 1981. Scottsdale Camelback Hospital, Scottsdale. Sponsor: Philadelphia Child Guidance Clinic & Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

### **Vectorcardiography (An Advanced Workshop)**

April 29, 30 & May 1, 1981. Sponsor: American College of Cardiology and Good Samaritan Hospital Institute for Cardiovascular Diseases. Contact: Registration Secretary, Extramural Programs Department, American College of Cardiology, 9111 Old Georgetown Rd., Bethesda, MD 20014.

## MAY

### **Obstetrics & Gynecology**

May 9, 1981. U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of CME and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 6 hours of category 1 credit.

### **Recurrent Infections**

May 12, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor: Desert Samaritan Hospital. Contact: Office of CME, Desert Samaritan Hospital, 1400 S. Dobson Rd., Mesa, AZ 85202. Approved for hour per hour category 1 credit.

### **Structural Family Therapy Series Working with Single Parent Families**

May 15-16, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Clinic & Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

### **The Critically Ill Child**

May 15-16, 1981. St. Joseph's Hospital & Medical Center, Phoenix, Arizona. Sponsor: St. Joseph's Hospital & Medical Center, Pediatric Educ. Dept. Contact: Pediatric Education Department, 350 W. Thomas Road, Phoenix, AZ 85001. Approved for 12.5 hours of category 1 credit.

### **Microvascular Surgery**

May 26, 1981. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

### **Insulin Pump**

May 27, 1981. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

### **American College of Physicians, Interim Meeting**

May 29-31, 1981. Little America, Flagstaff, Arizona. Sponsor: American College of Physicians. Contact: Alan Gordan, M.D., 2200 N. 3rd St., Phoenix, AZ 85005. Approved for hour per hour category 1 credit.

## JUNE

### **Adverse Drug Reactions in the Elderly**

June 2, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor & Contact: Desert Samaritan Hospital, 1400 S. Dobson Rd., Mesa, AZ 85202. Approved for hour per hour category 1 credit.

### **Fifth Annual Southwestern Cardiovascular Symposium**

June 11-13, 1981. Arizona Biltmore Resort, Phoenix, Arizona. Sponsor: St. Luke's Hospital and Medical Center. Contact: Office of CME, St. Luke's Hospital and Medical Center, 525 North 18th Street, Phoenix, AZ. Approved for 15 hours of category 1 credit.

### **Structural Family Therapy Series Blended Family**

June 19-20, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Clinic and Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

### **4th Annual Summer Pediatric Conference**

June 19-21, 1981. Poco Diablo Resort, Sedona, Arizona. Sponsor: U of A College of Medicine and Arizona Pediatric Society. Contact: Office of CME & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 13 hours of category 1 credit.

## MONTHLY OR WEEKLY

### **Shrine Medics Meeting**

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

### **Office Psychiatry for the Primary Provider**

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

### **Counter Transference Group**

Weekly, Thurs. 8-10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

### **Monthly Meeting of Tucson Radiologists**

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

### **Pediatric Grand Rounds**

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

### **Review of Forensic Pathology Current Case, Special Topics**

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.



## ARIZONA HEART INSTITUTE

4800 N. 22nd St., Phoenix, P.O. Box 10,000,  
Phoenix, AZ 85064. Contact: Ravi Koopot,  
M.D.

### Clinical Conference Cardiovascular Medicine

Third Tues., 5:15 p.m., second floor  
classroom

## ARIZONA STATE HOSPITAL

2500 E. Van Buren, Phoenix, AZ. 85008.  
Contact: Arnold L. Kendall, M.D.

### A.S.H. Psychiatric Grand Rounds

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm.,  
Contact: Dr. Conger & Staff

### Clinical-Pathological Conference

3rd Wed., 1:30-2:30 P.M. General Services  
Bldg., Conf. Rm.

### Medical Grand Rounds

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf.  
Rm.

## BARROW NEUROLOGICAL INSTITUTE

### Medical Education

Barrow Neurological Institute of St. Joseph's  
Hospital and Medical Center, 350 W. Thomas  
Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's  
Hospital & Medical Center. Contact: John R.  
Green, M.D. Approved for 1 hour category 1  
credit.

### Neurology Teaching Conference

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf.  
Room.

### Neurosurgical Morbidity Conference

Wednesdays, 8:15-9:15 a.m., on first and third  
and 5th, Eighth Floor Conference Room.

### Neuro-ophthalmology Conference

Tuesdays, 7:30 a.m. in 8th floor neurology  
conference room.

### Spinal Injury Conference

Wednesdays, 8:15-9:15 a.m., on second and  
fourth weeks, in Neuropathology Conf.  
Rm.—a multidisciplinary review of admission  
by neurosurgeons, orthopedists, and  
rehabilitation specialists

### Neuro-ophthalmology Conference.

Weekly, 7:30 a.m., 8th floor conference Rm.

### Neuropathology of Gross Specimens Conference

Thursday, 7:30-8:30 a.m. in the Morgue.

### Neurology-Neurosurgical

Fridays, 8-9 a.m., First Floor Conference Rm.

### Neuropathology or Neuroradiology Conferences

Friday, 9 a.m., Neuropathology in  
Neuropathology Conference Rm.,  
Neuroradiology in First Floor Conference  
Rm.

### Neurorehabilitation Conference

Tuesdays, noon, 8th Floor Conference Rm.

### Neurosurgical Journal Club

Saturdays, 9-11 a.m. in Eighth Floor  
Conference Rm.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Tunderbird Boulevard, Sun City, AZ  
85372. Contact: Martha R. Newby, ED.D.,  
Director of Education.

### Medical Department Continuing Medical Education

4th Wednesday, 12 Noon, C119. May, July,  
Sept. & Nov.

### Tumor Board

Last Thursday of the month, 12 Noon, Educ.  
Center Classroom I & II, May, July, Sept., &  
Nov.

### Surgical Department CME

4th Friday, 7 A.M., Educ. Center Classrooms I  
& II. Contact: Brian Updegraff, M.D.

## CAMELBACK HOSPITAL

5055 N. 34th St., Phoenix, AZ 85018. Sponsor:  
Camelback Hospital. Contact: T. F. Reid, Jr.,  
M.D.

### Clinical Conference

3rd Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

1400 South Dobson Road, Mesa, Arizona,  
Contact: L.A. Rosati, M.D. Approved for  
category 1 credit.

### CME Programs

Weekly Tuesday, 7 p.m., Cafeteria-West End.

### Clinical Conference - Dept. of Medicine

Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch,  
Grande Rm.

### OB/GYN Medical Staff Conference

Weekly, Monday, 12:30-1:30 p.m. Grande Rm.

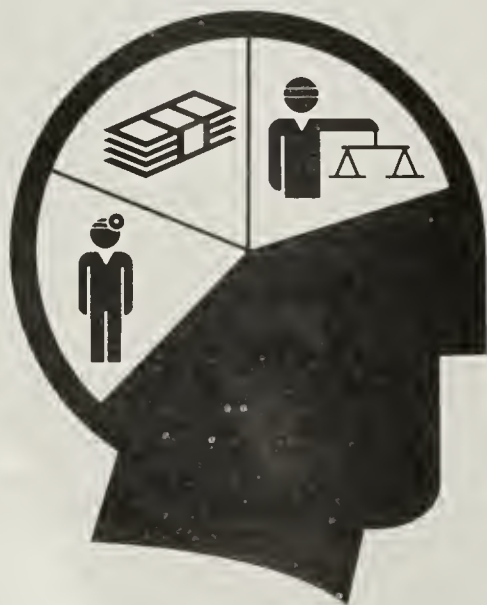
### Pediatric Case Conference

2nd. Friday, 12:30 p.m., Grande 2

## DOCTORS HOSPITAL

1747 East Thomas Road, Phoenix, Arizona  
86016 Contact: Medical Staff Secretary for  
additional information.

# THE LEGAL HURT OF CHRONIC PAIN



Cassette tapes are now available from this nationally-acclaimed  
seminar sponsored by St. Luke's Hospital Medical Center in  
November 1980. Learn from medical, insurance and legal experts  
how to present, understand and evaluate evidence on chronic  
pain in judicial hearings.

The complete 12-tape set includes presentation detailing:

- effective conduct for physicians before a jury
- Can the patient return to work?
- the disabled patient with "nothing wrong with him"
- defense lawyer/claims manager expectations
- jury selection
- ... and more.

Tape quality and satisfaction are guaranteed.

To obtain your tapes, complete  
and mail the accompanying form  
to:

Christine Campbell, Seminar Coordinator  
St. Luke's Hospital Medical Center  
525 N. 18th Street, Phoenix, Arizona 85006  
(602) 258-7373, ext. 311

Send me \_\_\_\_ set(s) of tapes from "The Legal Hurt of Chronic  
Pain" seminar at \$120 each, plus \$3.50 shipping charge. (Arizona  
residents add 5% sales tax: \$6 per set)

Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

☐ Check (payable to St. Luke's Hospital Medical Center)

☐ Master Card/Visa # \_\_\_\_\_ Exp. date \_\_\_\_\_

Signature \_\_\_\_\_



**Physicians Continuing Education Program**  
1st Thursday, 12:30 p.m., Classrooms.

## **EL DORADO HOSPITAL TUCSON (THMEP)**

1400 N. Wilmont Road, Tucson, AZ 85712.  
Contact: Eric G. Ramsay, M.D. Approved for  
category 1 credit.

### **Family Practice Department Meeting**

1st Monday, 12 Noon, Contact: R. Grossman,  
M.D.

## **FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA**

1215 N. Beaver Street, P.O. Box 1268,  
Flagstaff AZ 86002. Contact: B. C.  
Hirschberg, M.D., CME Program Clinical  
Conference. Approved for category 1 credit.

### **Quarterly General Medical Staff Meeting**

Monday, March 9. 7:30 P.M., Toffelson Rm.

### **Clinical Conferences**

Weekly, Tuesdays, 12:30 P.M., Tollefson Rm.

### **Mortality & Morbidity Conference**

Thursday, March 5, 12:30 P.M., Tollefson Rm.

## **GOOD SAMARITAN HOSPITAL**

1033 East McDowell Rd., Phoenix, AZ  
Contact: W. J. Howard, M.D. Approved for  
category 1 credit.

### **Anatomical Path. & Cytology**

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf  
Rm.

### **Gynecological Section Conference**

2nd Monday, 12:30-1:30 p.m., West Rm

### **Monday Noon Conference**

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### **Mortality/Morbidity, Surgery Comm.**

2nd Monday, 11:30-2:00 p.m., West Rm.

### **Obstetrical Section Conference**

1st Monday, 12:30-1:30 p.m., West Rm.

### **Pulmonary Disease Grand Rounds**

Weekly, 12:00-1:00 p.m., D-5 North

### **Family Practice Conference**

Weekly Tuesday, 12:00-1:00 p.m., Fam.  
Practice Conf. Rm.

### **Pediatric Grand Rounds**

3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul  
Bergeson, M.D.

### **PM & R Noon Inservice**

2nd & 4th Tuesday, 12 Noon, R-2 Conference  
Rm.

### **Surgical Grand Rounds**

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### **Clinical Cancer Forum**

3rd Wednesday, 12:00-1:00 p.m., West Rm,  
Contact: John A. Bruner, M.D.

### **Combined Cardiovascular & Family Practice Conf.**

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5  
North.

### **Learning Disabilities**

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

### **OB/GYN Dept. Review & Statistics**

Weekly, 12:30-3:00 p.m., OB/GYN Conf. Rm.

### **Gynecological Pathology**

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf.  
Rm.

### **GI Radiology Conference**

1st Thursday, 12:00-1:00 p.m., F151,  
Radiology Conf. Rm.

### **Phoenix Ultrasound Soc. Meeting.**

Medical Education Building, Contact: Dr.  
Ben Ora

# **Summer Cruise/Conferences on Legal-Medical Issues**



**APPROVED FOR  
23 CME CREDITS  
CATEGORY I**

By the American College of Legal Medicine  
Seminars Directed by Irwin N. Perr, M.D., J.D.  
Professor, Rutgers Medical School

Caribbean Conference — July 29 — August 8, 1981 aboard  
TSS Fairwind.\* Visit St. Maarten, Antigua, Barbados,  
Martinique and St. Thomas.

Mediterranean Conference — August 22 — September 5,  
1981 aboard Mts. Danae.\*\* Visit major cities in Italy,  
Greece, Egypt, Israel, Turkey, Yugoslavia.

- All meals on cruise and aloft.
- Excellent Fly/Cruise group rates.
- Seminars conducted at sea.
- Hotel Danieli — Venice, Italy
- Alitalia scheduled flights to Italy.
- All transfers

The number of participants in each Conference is limited.  
Early registration is advised.

For color brochure  
and additional  
information contact:

International Conferences  
189 Lodge Avenue  
Huntington Station, N.Y. 11746  
Phone (516) 549-0869

Both conferences are designed to conform with the 1976 Tax Reform Act.

\* Liberian Registry  
\*\* Greek Registry

### **Neurology Grand Rounds**

Weekly Thursday, 9:00-10:00 a.m., D-5 North.

### **Tumor Treatment Planning Conf.**

2nd & 4th Thursdays, 12:00-1:00 p.m., F151  
Radiology

### **Joint Tumor Gyn Conference**

2nd Friday, 12:30-1:30 p.m., West Rm.

### **Medical Grand Rounds**

Weekly Friday, 8:00-9:00 a.m., West Rm.

### **Neuropathy Conference**

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

### **Psychiatry Grand Rounds**

Weekly Friday, 11:30-1:00 p.m., East Rm.

## **KINO COMMUNITY HOSPITAL,(THMEP)**

2800 E. Ajo Way, Tucson, AZ. 85713. Contact:  
Eric C. Ramsay, M.D., Approved for Category  
1 credit.

### **Attending's Hour**

5th Monday, 12:30 p.m., Contact: J.  
Goldberger, M.D.

### **Infectious Disease Conference**

3rd Monday, 12:30 p.m., Contact: Barry  
Friedman

### **Ophthalmology Conference**

1st Monday, 12:30 p.m., Contact: Bruce  
Gillers, M.D.

### **Psychiatric Conference**

2nd & 4th Mondays, Contact: J. Santiago,  
M.D.

### **Surgical Conference**

Weekly Mondays, Contact: R. Fischer, M.D.

### **Cardiology Conference**

4th Tuesday, 12:30 p.m., Contact: B. Phibbs,  
M.D.

### **Clinical Pharmacology Conference**

5th Tuesday, 12:30 p.m., Contact: M. Katz,  
Clinical Pharm.

### **Neurology Conference**

1st & 3rd. Tuesday, 12:30 p.m., Contact: J.  
Laguna, M.D.

### **Radiology Conference**

2nd Tuesday, 12:30 p.m., Contact: M. Baker,  
M.D.

### **Medical Surgical Grand Rounds**

2nd Wed., 12:30 p.m., Contact: Chief Medical  
Resident

### **Medical Conference**

1st Wed, 12:30 p.m., Contact: Chief Medical  
Resident

### **Cardiology Conference**

1st Thursday, 12:30 p.m., Contact: B. Phibbs,  
M.D.

### **Endocrine Conference**

2nd Thursday, 12:30 p.m., Contact: E.  
Munjack, M.D.

### **GI Conference**

4th Thursday, 12:30 p.m., Contact: C. Kanun,  
M.D.

### **Mortality & Morbidity Conference**

3rd. Thursday, 12:30 p.m., Contact: E.  
Munjack, M.D.

### **OB/GYN Dept. Meeting**

2nd Thursday, 2 p.m., Contact J. Wurzel, M.D.

### **OB/GYN Pathology Conference**

Weekly, Thursday, except 2nd, Contact: J  
Wurzel, M.D.

### **OB/GYN Sonograph/X-ray Conference**

4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

### **Clinical Pathology**

5th Thursday, 12:30 p.m., Contact: J.  
Fleishman, M.D.



**Renal Conference**

1st Friday, 12:30 p.m., Contact: T. Pence, M.D.

**Hematology Conference**

2nd & 4th Friday, Contact: S. Ketchel, M.D.

**Rheumatology Conference**

3rd Friday, 12:30 p.m., Contact: J. Goldberger, M.D.

**Chest Conference**

5th Friday, 12:30 p.m., Contact: D. Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008  
**Continuing Medical Education Program**  
 Every other Wednesday, 7-8 a.m.

**Clinical Conferences**

2nd & 4th Wednesday, 12-1 p.m., Medical Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008.  
 Contact: Leonard Tamsky, M.D.

**Medicine Conference**

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

**Chest Surgery Conference**

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

**Hematology Conference**

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

**OB/GYN Dept. Grand Rounds**

Weekly Tuesday, 12 Noon, Santa Cruz Room

**Obstetrical Problem Conference**

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

**Orthopedic Conference**

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

**Pediatric Grand Rounds**

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

**Urology Discharge Planning Conference**

Weekly, 11:30 a.m., Station 42

**Hand Surgery Conference**

Weekly Wed, a.m., Santa Cruz Rm.

**Neurosurgery Discharge Planning**

Weekly Wed., 1:30 p.m., Station 42.

**OB/Neonatology Seminar**

Weekly, Wed. 7:30 a.m., Yavapai Rm.

**Clinical Psychiatric Conference**

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

**Surgery Conference**

Weekly Wed., 7-8 a.m., Surgical Dept.

**Current Concepts in Medicine & Surgery**

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

**Cardiology Conference**

Weekly Thurs., 2 p.m., Santa Cruz Rm.

**OB/GYN Resident Conference**

Weekly Thurs., 12 p.m., Yavapai Rm.

**GYN Endocrine Seminar**

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

**OB/GYN Surgical Pathology Conf.**

Weekly Friday, 7:30 a.m., Yavapai Rm.

**Orthopedic X-Ray Conference**

Weekly Friday, 7:30 a.m., Santa Cruz Rm.

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.  
 Contact: Leonard M. Lapenson, M.D.,  
 Approved for category 1 credit.

**Clinical Conferences**

1st & 3rd Tuesdays, 12 noon, 5th floor auditorium.

**CPC or Medical-Surgical Forum**

4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.  
 Contact: Leland L. Fairbanks, M.D.,  
 Approved for category 1 credit.

**Pediatric Grand Rounds**

1st Tuesday, 7:30-8:30 a.m., Contact: D. Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**

Wed. Weekly, 8:00 a.m.

**Otolaryngology Grand Rounds**

4th Wednesday, 4-5 p.m., Conference Rm. A,  
 Contact: N. Wendell Tood, M.D.

**Family Practice/Emergency Room Teaching Conference**

Thursday Weekly, 7:30-8:30 p.m., Conf. Rm. A,  
 Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:  
 George Scharf, M.D. Approved for category 1 credit.

**Monthly Medical Education Seminar**

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

**Clinical Conferences**

Weekly Tuesday, 12:30 p.m., Kiva Conference Rm.

**Tumor Board Conference**

Weekly Friday, 12 p.m., Kiva Conf. Rm.  
 Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251.  
 Contact: W. S. Williams, M.D., Approved for category 1 credit.

**Family Practice Conference**

1st Monday, 12:30 p.m., Doctors' Lounge

**Family Practice Conference**

1st Monday, 12:30 p.m., Doctors' Lounge

**Emergency Medical Services Conference**

2nd Monday, 12:30 p.m., Doctors' Lounge

**Neurology/Neurosurgery Conference**

3rd Monday, 12:30 p.m., Doctors' Lounge

**CPC Conference**

4th Monday, 12:30 p.m., Doctors' Lounge

**Pediatrics Conference**

5th Monday, 12:30 p.m., Doctors' Lounge

**Pulmonary Conference**

1st Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiology Conference**

2nd Tuesday, 12:30 p.m., Doctors' Lounge

**Surgery Conference**

3rd Tuesday, 12:30 p.m., Doctors' Lounge

**Resident Grand Rounds**

4th Tuesday, 12:30 p.m., Doctors' Lounge

**Medical Subspecialties**

5th Tuesday, 12:30 p.m., Doctors' Lounge

**Psychiatry Conference**

1st Thursday, 12:30 p.m., Doctors' Lounge

**Urology Conference**

3rd Thursday, 12:30 p.m., Doctors' Lounge

**Tumor Conference**

4th Thursday, 12:30 p.m., Doctors' Lounge

**Special Programs**

5th Thursday, 12:30 p.m., Doctors' Lounge

**GI/Med/Surg/Radiology Conference**

2nd Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85013.  
 Contact: Joseph C. White, M.D.

**OB/GYN Section Conference**

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor Conf. Rm.

**Genetics Conference**

Weekly Monday, 12:30 p.m., Pediatric Department.

**Pediatric Rounds**

Weekly Monday, Wed. & Friday, 10:30 a.m., Pediatric Department.

**Pediatric Grand Rounds**

4th Tuesday, 7:30-8:30 a.m., Contact: J. Kipp Charlton, M.D.

**ECG Conference**

Weekly Tuesday, 12:30 p.m., Pediatric Department.

**Medical Grand Rounds**

Weekly Wednesday, 8 a.m., 1st Floor Conf. Room.

**Visiting Professor Formal Presentation**

Weekly Thursday, 8 a.m., PIMC

**Visiting Professor Informal Presentation**

Weekly Thursday, 9:30 a.m., 1st floor Conf. Rm.

**Visiting Professor Formal Presentation**

Weekly Thursday, 12:30 p.m., PIMC

**Nephrology Conference**

Weekly Fridays, 12:30 p.m., Pediatric Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilcox Road, Tucson, AZ. Contact:  
 Eric G. Ramsay, M.D. Approved for Category 1 credit.

**Family Practice Department Meeting**

3rd Tuesday, 12 p.m., Contact: Wm. Moteforte.

**Ophthalmology Morbidity/Mortality Conf.**

4th Tuesday, 12:15 p.m., Contact: Kim Sowards.

**Current Concepts in Medicine**

Weekly, Tuesday, 12 p.m., Auditorium.

**Hematology-Oncology Conference**

Last Wednesday, 12:15-1:15 p.m., Contact: S. Salmon, M.D.

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact:  
 Gerald L. Hansbro, M.D.

**Cardiac Conference**

Weekly Monday, 12:15 p.m., Auditorium

**Surgery Conference**

1st Tuesday, 12:15 p.m., Auditorium

**Emergency Medicine Conference**

1st Wednesday, 12:15 p.m., Auditorium

**Cardiovascular-Thoracic Record Review**

3rd Wednesday, 12:15 p.m., Auditorium

**Psychiatry Conference**

3rd Thursday, 7 a.m., Auditorium

**Combined Medical General Practice Conference**

1st Friday, 12:15 p.m., Auditorium

**Toxicology Grand Rounds**

2nd Friday, 7:30 a.m., Auditorium

**Ophthalmology Conference**

1st Saturday, 8:30 a.m., Auditorium.



## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W. St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.

### Monthly Specialty Conference-Dept. of Surgery

1st Monday, 7:30 a.m., Century Rm. A.,  
Contact: Med. Staff Office.

### Grand Rounds: Medical Surgical, Family Practice, Pathology, Radiology

Weekly Thursday

### Emergency Medicine Lectures

Weekly Thursday, 8 a.m., Century Room A.

### Mental Health Update

1st Friday, 11:30-1:00 p.m., Century Rm. A.

### Cardiology Conference

Weekly Friday, 8:00-9:00 a.m., Century Rm.,  
Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.

Contact: Eric G. Ramsay, M.D. Approved for  
Category 1 credit.

### Cardiology Conference

Weekly Monday, except last, 12 Noon,  
Contact: J. Fernandez, M.D.

### Dermatology Conference

4th Monday, 5:00 p.m., Contact: R. Miller,  
M.D.

### Endocrinology Conference

Last Monday, 12 p.m., Contact M. Parker,  
M.D.

### Perinatal Conference

2nd Monday, 7:30 p.m., Contact: J. Lohman,  
M.D.

### Chest Conference

3rd Tuesday, 12 noon, Contact: William  
Nevin, M.D.

### Hematology Conference

4th Tuesday, 12 Noon, Contact: M. Boxer,  
M.D.

### Infectious Disease Conference

2nd Tuesday, 12 noon, Contact: B. Friedman,  
M.D.

### Nephrology Conference

1st Tuesday, 12 noon, Contact: Dr. Seltzer.

### Orthopedic Conference

1st Tuesday, 8:00 p.m., Contact: Jay Katz,  
M.D.

### Pediatric Grand Rounds

1st & 3rd Tuesday, 12:30 p.m., Contact: Dr.  
Lightner.

### Cardiac Cath. Conference

2nd & 4th Wednesday, 5:15 p.m., Contact: L.  
Buckels, M.D.

### Clinical Pathology Conference

Last Wednesday, 8:00 a.m., Contact: Dr.  
Fuchs.

### Family Practice Meeting

2nd Wednesday, 12:30 p.m., Jan., April, July,  
& Oct. Contact: C. Mangelsdorf, M.D.

### Medical Conference

Weekly Wednesday, 8:00 a.m., Contact: M.  
Fuchs, M.D.

### Neurology-Neurosurgery Conference

Weekly Wednesday, 12 noon, Contact: H. W.  
Buschsbaum, M.D.

### Dermatology Conference

1st Thursday, 12 noon, Contact: R. Friedman,  
M.D.

### Neuroradiology Conference

Weekly Thursday, 5:00 p.m., Contact: N.  
Komar, M.D.

### Tumor Conference

Weekly Thursday, 12 noon, Contact: Dr.  
Hastings.

### G—I Conference

Weekly Friday, 12 noon, Contact: C. Krone,  
M.D.

### Interhospital Nuclear Medicine Conference

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts,  
M.D.

### OBGYN Conference

1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

### OBGYN Pathology Conference

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

### Surgical Department Conference

Weekly Saturday, 7:30 a.m., Contact: Dr.  
Hastings, TMC.

### Surgical Grand Rounds

Weekly Saturday, 9:00 a.m., UAHSC-Room  
5403, Contact: Dr. Norton.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix,  
AZ 85012. Contact: Alfred Heibrunn, M.D.

Approved for Category 1 credit.

### GI X-Ray Clinical Correlation Conf.

1st & 3rd Monday, 1 p.m., Rm. C435, Contact:  
Drs. Sanowski, & Jarczyk.

### Medical/Surgical GI Conference

1st & 3rd Mondays, 3 p.m., Rm. 3134,  
Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext  
493.

### GI Pathology Conf.

2nd & 4th Monday, 1 p.m., Path Conf. Rm,  
Contact: Dr. Sanowski..

### Vascular Conference

2nd Monday, 3 p.m., Room 3134, Dr. Cintora,  
Ext 419

### Surgery/Pathology Conference & Tissue Review

1st & 3rd Tuesday, 4 p.m., Room 2128,  
Contact: Dr. Landard

### GI Grand Rounds

Weekly Tuesday, 1 p.m., Contact: Drs.  
Sanowski, Kozarek & Partyka

### Cancer Symposium

Weekly Wed., 1 p.m., T-5, Contact: Dr. Byrne,  
Ext. 426.

### Housestaff Pulmonary Disease Teaching Conf.

Weekly Wed., 3-4 p.m., Contact: Dr.  
Rohwedder, Ext. 388.

### Medical Surgical Chest Conference

1st & 3rd Thursday, Contact: Dr. Rohwedder  
or Dr. Gill.

### Cardiology Conference

2nd Thursday, 1 p.m., Rm. T-5.

### Medical Service Grand Rounds

Weekly Friday, 11 a.m., Contact: Dr. Zeller

### GI Resident Conference

Weekly Friday, 1:00 p.m., D446, Contact: Drs.  
Grobe, Phelps, Sanowski and Kozarek.

### Surgical Journal Review & Videotape Session

Weekly 1 p.m., Room 3134.

## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed  
below. Approved for category 1 credit.

### Medical Lectures

1st & 2nd Thursday & Weekly, Fridays, 1:30  
p.m., Bldg. 28. Contact: J. W. Fitzharris, D.O.

### GI Rounds

Third Thursday, 10 a.m.-2:30 P.M., Contact:  
J. W. Fitzharris, D.O.

### Grand Rounds

Weekly Thursdays, 11 a.m., Bldg. 107.  
Contact: J. W. Fitzharris, D.O.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723.  
Contacts listed below. Approved for category  
1 credit.

### Medical Surgical Chest Conference

Weekly Tuesday, 2 p.m., Contact: Dr. Young

### Medical Grand Rounds

Weekly Wed., 12-1:00 p.m., VA Hospital Staff  
Conf. Rm. & (AHSC), Contact: Jay Smith,  
M.D.

### Surgical Grand Rounds

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

### Endocrinology Seminar

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm.  
N318, Contact: Dept. of Internal Medicine.

### Grand Rounds

Weekly, Thursday, 11 a.m., Bldg. 107,  
Contact: J. Fitzharris, D.O.

### Vascular Radiology, Interesting Case Conf.

Weekly Thursday, 12:00 noon.

### Neurology Grand Rounds

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact:  
Alan Winfield, M.D. Approved for category 1  
credit.

### Radiology Conference

1st Tuesday, 7:00 a.m.

### Operation Outreach

2nd Tuesday, 6:30 p.m.

### Pathology Conference

4th Tuesday, 7:00 a.m.

### Operation Outreach

2nd Wednesday, 7:00 a.m.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson,  
AZ 85724. Robert M. Anderson, M.D., Dir. of  
CME. Contact: See below. Approved for  
category 1 credit.

### Anesthesiology Board Review Conference

2nd & 4th Monday, 4-5 p.m., AHSC Dining  
Rm. C&D, Contacts: Dr. Vaughn & Kryc.

### Anesthesiology Basic/Clinical Sciences Lectures

Weekly Thursday, 4-5 p.m., Room 5403

### Anesthesiology Case Discussion

Weekly Wed., 7:00 a.m., AHSC, Dining Rm.  
C&D.

### Anesthesiology Resident Presentation

1st Monday, 4-5 p.m., AHSC Dining Room,  
C&D, Contacts: Drs. Otto & Zehngut.

### Cancer Center Tumor Board Seminar

3rd Tuesday, Monthly, 12-1 p.m., HSC  
Auditorium, Contact: Cancer Center

### Cardiac Catheterization Conference

Weekly Friday, 4:00 p.m., Contact: Dr.  
Temkin.



**Cardiology Research Conference**

Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

**Tucson Cardiovascular Society**

1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

**Cerebrovascular Disease Conference**

Weekly Monday, 5:00-6:00 p.m., AHSC, Rm. 5505, Contact: Dr. W. Moore

**Clinical Immunology, Allergy & Rheumatology Rounds**

Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

**Cerebrovascular Disease Conference**

Mondays, 5-6 p.m., Weekly, Rm. 5505. Contact: Wesley Moore, M.D., Depts. of Surgery, Neurology & Radiology.

**Dermatology Rounds**

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

**Endocrinology Seminar**

Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

**GI Pathology Conference**

4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

**GI Radiology Conference**

2nd. & 4th Mondays, 7:30 a.m., AHSC, Contact: Dr. T. Hunter

**Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact: Dr. Manning

**Hematology-Oncology Clinical Conference**

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact: S. Salmon, M.D., Dept. of Internal Medicine.

**Medical Grand Rounds**

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

**Morbidity/Mortality in E.M.**

2nd Tuesday, 9:00 a.m., AHSC, Contacts: Drs. Hughes & Alcorn

**Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

**Neuropathology Review Conference**

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

**Neuroradiology Conference**

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

**Neuromuscular Journal Conference**

2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

**Neuropathology Case Review**

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

**Neurosciences Seminar**

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

**Nuclear Medicine**

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

**Ophthalmology Grand Rounds**

Weekly Friday, 8 a.m., AHSC, Contact: Dr. H. Cross

**Ophthalmology Retina & Fluoro. Conference**

Weekly Thursday, 5:00 p.m., AHSC Contact: Dr. H. Cross

**Orthopedic Rounds**

Saturday, 8:00 a.m., Contact: Dr. Peltier.

**Pain Conference**

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

**Pathology Seminar**

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. F. Finley

**Tucson Pathologist Conference**

1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

**Pediatric Grand Rounds**

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

**Pediatric Problem Patient Conference**

Weekly Wed., 8:00 a.m., Contact Dr. Walson

**Pediatric Research Forum**

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

**Pediatric Specialty Conference**

Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

**Psychiatric Grand Rounds**

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

**Psychiatric Monthly Case Conference**

2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

**Pulmonary Rounds**

Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

**Chest Radiology**

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

**Neuroradiology Teaching Conference**

Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

**Radiation Oncology Planning Conference**

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

**Radiology Interesting Case Conference**

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

**Gastrointestinal Radiology**

Weekly Tuesday, 5-6 p.m., AHSC, Contact:

Radiology Dept.

**Radiology-Rheumatology Conference**

Weekly Thursday, 7:45 a.m., UAHSC, Library Rm.1535C.

**Uroradiology (Genitourinary Radiology)**

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

**Renal Pathology Conference**

1st & 3rd Thurs., 11:30 a.m., Contact: Dr. Nagle.

**Residents Noon Conference**

Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact: Dr. A. Greensher.

**Resident's Conference**

Wednesday, weekly 5-6 p.m., Diag. Radiology Conf. Rm.

**Surgical Morbidity & Mortality Conference**

Weekly Wed., 8:00 a.m., Contact: Dr. Wangenstein.

**Joint Thyroid Conference**

1st & 3rd Wed., Contact: S. C. Werner, M.D.

**Trauma Conference**

Every Thursday, 4-5 p.m. UAHSC, Rm. 5505.

**Ward Grand Rounds - Trauma**

Weekly Tuesday, 8:00 a.m., Contact: Dr. M. Silverstein.

**Toxicology Conference**

Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes

**Tucson Ultrasonography Group**

Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

**General Urology Conference**

Weekly Tuesday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach.

This publication  
is available in microform.

**University Microfilms International**

Please send additional information

Name \_\_\_\_\_  
Institution \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, Mi. 48106  
U.S.A.

30-32 Mortimer Street  
Dept. P.R.  
London WIN 7RA  
England



# Before Your Patient's Headache Problems Become Your Problem...

**Contact The Headache Group of the Southwest  
A Multidisciplinary Approach to the  
Diagnosis and Treatment of Headaches**

G. SCOTT TYLER, M.D. / HAROLD E. McNEELY, Ph.D.

1402 North Miller Road Suite F-5  
Scottsdale, Arizona 85257  
Telephone: (602) 941-5353



**The Headache  
Group of the  
Southwest**



**For Details see pages  
213 - 215**

**a.e**

## **From One Specialist To Another...**

We are proud to service the printing  
needs of Arizona's medical and  
pharmaceutical professions.

**ALLIED ENVELOPE  
& PRINTING, INC.**

**a.e**

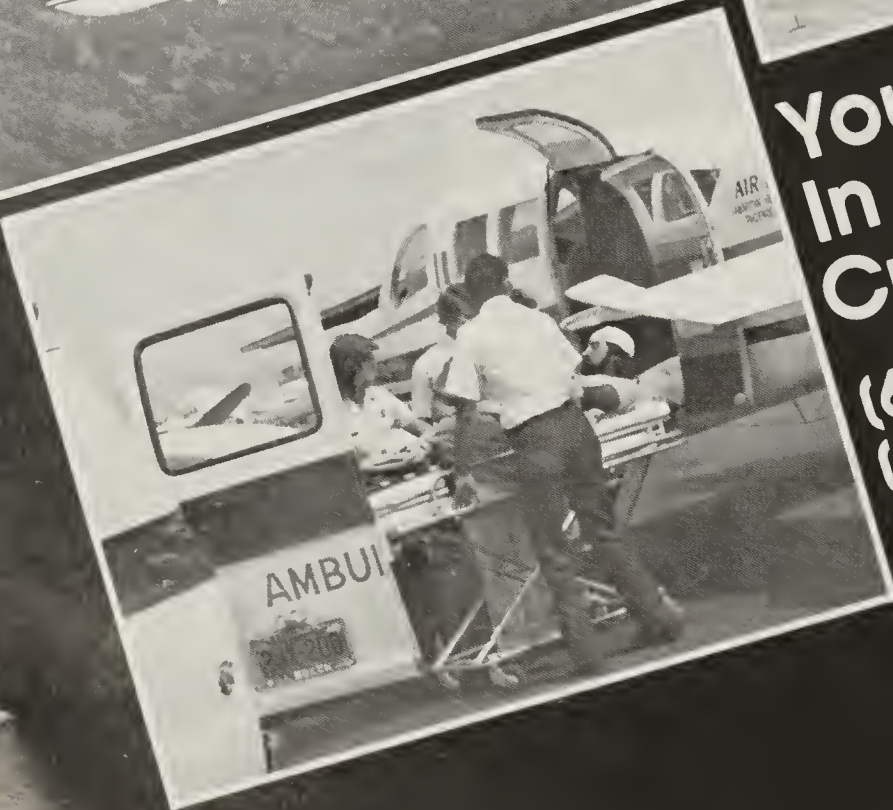
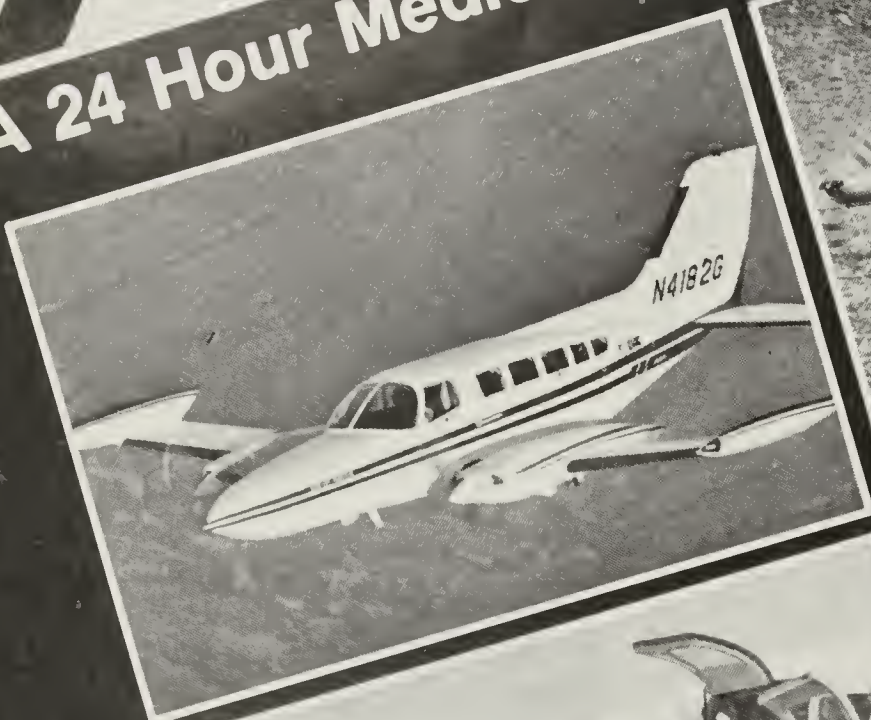
1323 East McDowell Road  
Phoenix, Arizona 85006  
258-5528

*Printed Envelopes/Letterheads/Medical Forms  
Prescription Pads/Carbonless Forms  
Emergency Service Available — Local Pick-Up & Delivery*

Lincoln Samaritan

# AIR EVAC

A 24 Hour Medical Emergency Air Service



**Your Partner  
In  
Critical Care**  
**(602) A-I-R-E-V-A-C**  
**(247-3822)**

**Our name is our number**  
**Serving Arizona and the Nation**  
**Since 1969**



**Another  
good reason  
to insure with  
MICA  
is YOUR  
policy limits  
for defense.**

If your limits are exhausted, we are still your insurance company regardless how expensive the defense may be.

MICA will continue to defend claims or suits made against you even though the policy limits have been used up. Other malpractice insurers may not provide defense coverage after the policy limits have been exhausted.

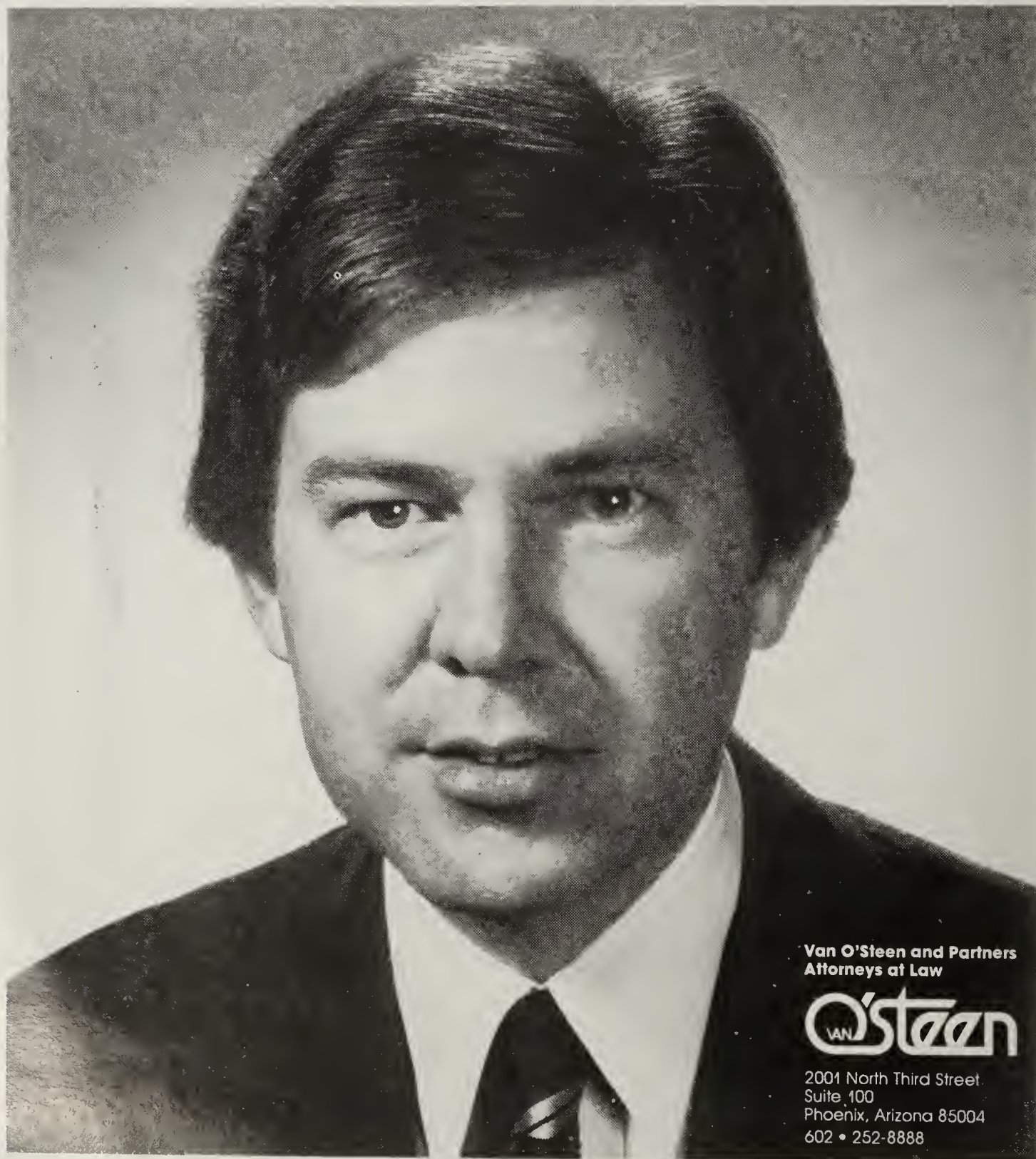
**For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402**

**MICA MICA MICA MICA**

**MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by the Arizona Medical Association.**

# What doctors should know. . . about lawyers

A physician's license to practice medicine is his or her most valuable asset. In Arizona, it can be suspended or permanently revoked by the Board of Medical Examiners based on the complaint of a single disgruntled patient. We strongly recommend that you discuss all Board inquiries with a lawyer who handles Administrative Law matters.



Van O'Steen and Partners  
Attorneys at Law

**Van O'Steen**

2001 North Third Street  
Suite 100  
Phoenix, Arizona 85004  
602 • 252-8888



# COMPUTED TOMOGRAPHY, LTD.

## Cranial and Body CT Scanning

ARIZONA MEDICAL PLAZA  
1728 WEST GLENDALE AVENUE, SUITE LL3  
PHOENIX, ARIZONA  
PHONE 995-1557

**DELTA 50**

**DELTA 2020**  
**2 Sec. Scanner**

PLAZA DEL RIO MEDICAL CENTER  
9419 WEST THUNDERBIRD ROAD  
SUN CITY, ARIZONA  
PHONE 972-1127



WALTER J. BROWN, M.D.  
JOHN B. FOX, M.D.  
ALFRED J. DELLA ROCCA, M.D.  
LELAND E. SARGENT, M.D.  
DONALD A. TOBIAS, M.D.  
ROBERT S. WALDMAN, M.D.



### ...and neither are you!

Now, the family doctor can get professional assistance for helping clients recognize and do something about alcoholism.

Concerned persons close to the alcoholic are learning about St. Luke's new, exclusive, Family Intervention Program by way of dramatic television announcements placed around high-rated programs at critical times of the day.

Families and friends are being urged to call this number for help: 258-7373, Ext. 506.

You are invited to use the same number for referral, assistance or information concerning treatment of the disease, alcoholism.



*St. Luke's Hospital*  
*Medical Center*

Write: Victoria Sterling  
Family Intervention Program  
525 N. 18th St., Phoenix, AZ. 85006

**You're Not  
Alone  
Anymore**

# **SAVE \$650 ON MY OFFICE SUPPLIES??**

Arizona physicians are saving as much as 28% on purchases of professional supplies and equipment through the Western Physicians Purchasing Association, a non-profit organization partially owned by your state medical association.

The average WPPA member from Arizona saved \$458 in 1979 — more than 9 times the 1980 dues of \$50.00 per doctor.

Professional items, office supplies, professional equipment, office furniture . . .  
more than 16,000 items available.

## **HOW MUCH MONEY HAVE YOU LOST BECAUSE YOU HAVEN'T BEEN A WPPA MEMBER?**

For additional information, call WPPA at (801) 479-1767

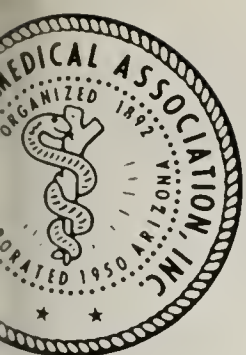
**It's Easy . . .**

**Just Join The WPPA, It Will More Than Save you State Medical Association Dues—**

## **WESTERN PHYSICIAN PURCHASING ASSOCIATION**

**Another membership benefit of the  
Arizona Medical Association**





# THE ARIZONA MEDICAL ASSOCIATION, INC.

## “SECURITY PACKAGE”

Key word in any insurance program is security. ArMA's Board of Directors, working with the Medical Economics Committee and A staff, has sponsored carefully designed insurance programs placed with excellent companies. The set-up of the over-all administration and local servicing assures you of prompt and courteous service in the unhappy event that you or your family should have a claim. Programs with service you can count on: **That's Security.**

**Dean S. Davidson Insurance Agency, Inc.**, with over 40 years of experience in all lines of insurance (including several Arizona divisions), and offices in Phoenix and Tucson, provides local service for all members. Should you need assistance at any time, trained personnel are available by phone or in person to assure efficient, thorough handling of your insurance programs.

**Southern California Agency** has been working with ArMA for almost 30 years. Its affiliate, **Health Agencies of the West, Inc.**, administers the full administration (marketing, underwriting, billing, and claims services) of all insurance programs. They are specialists in professional association group insurance, who provide the finishing touches to our “SECURITY PACKAGE”.

### Term Life Insurance

Underwritten by  
Fireman's Fund  
American Life Insurance Company



### Defendant's Reimbursement Insurance



underwritten by  
National Casualty Company

### House Life Insurance

Underwritten by  
Lincoln American Life  
Insurance Company



### Professional Overhead Expense Insurance



underwritten by Occidental Life  
Insurance Company of California

### Disability Income Insurance

Underwritten by  
National Casualty Company



Administered by

### Accidental Death & Dismemberment Insurance



underwritten by  
Fireman's Fund  
American Life Insurance Company

## HEALTH AGENCIES OF THE WEST, INC.

*And Locally Serviced by*

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200  
Phoenix, Arizona 85016  
(602) 277-6672

630 Craycroft Road  
Tucson, Arizona 85711  
(602) 745-0793

# Classified

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"



## Medical Transcription

Serving the medical  
profession for 20 years

## MULLEN MEDICAL SERVICE, INC.

4502 North 36th Street  
Phoenix, Arizona 85018.  
Telephone (602) 955-0763

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

*Tired of all that money going out?*

**For a competitive Quote on:**

- **Physicians & Surgeons Malpractice** •
- **Office Package** •
- **Automobile** •
- **Homeowners** •



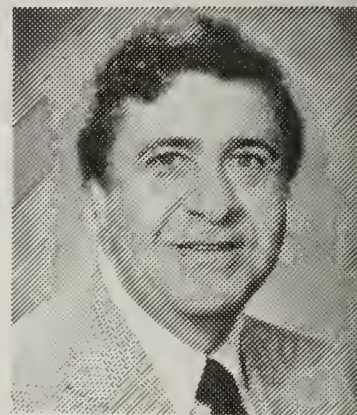
## PHOENIX-AMERICAN INSURANCE AGENCY

1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*

## Louis Jacob

General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632



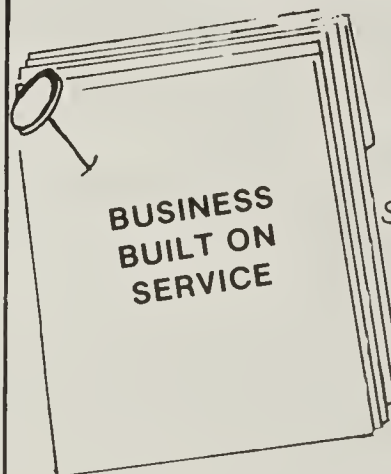
- *Tax Shelter Programs*
- *Individual & Group*
- *Life, Health and Pensions*
- *Auto, Fire, Theft*

**We Want You With Us**

## L. Louis Jacob Agency

Complete Insurance Services  
Call Us for an Auto Quote

## GUARANTEED SAVINGS!!



Billing and mailing  
same — day service

*Statements made from your  
ledgers at your office*

**House of Mailing**  
P.O. Box 943  
Phoenix, AZ., 8506  
(602) 942-370

## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If tea interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 61 North 7th Street, Phoenix, AZ 85014.

### COLON AND RECTAL SURGEON

To join group or partnership, available July 1981. CV on request. Dennis A. Fried, M.D., Department of Colon and Rectal Surgery, Cleveland Clinic Foundation, Cleveland, Ohio. (216) 444-6671 or evenings (216) 752-5434.



## POSITION AVAILABLE

Excellent practice opportunity in Prescott, Arizona for General Internist or Internist with subspecialty willing to do general internal medicine. Nancy D. Davis, M.D., 1055 Ruth Street, Prescott, AZ 86301. (602) 778-2890.

## LOCUM TENENS WORK WANTED

*The more you know about choices, the easier it is to choose.* That's why CompHealth, the oldest, largest locum tenens organization in the United States, can help make choices easier for you. Any specialty can be covered including: FP, IM, Rad, Anes, and ObGyn. With a large selection of reliable qualified physicians to choose from, CompHealth provides physicians, hospitals, clinics and communities with dependable locum tenens coverage, allowing you to keep your practice covered without inconvenience or concern. Turn a difficult decision into an easy choice. Contact: COMPHEALTH, 75 West 200 South, Suite 2003, Salt Lake City, UT 84101. (801) 532-1200.

## SEEKING POSITION

Board certified orthopedic surgeon, member of American Academy of Orthopedic Surgery, American College of Surgery, International College of Surgery. General Orthopedics with special interest in total joint replacement and arthroscopy. Caucasian; 33 years old; married. Desire: Solo practice or will share office. No multispecialty groups. Contact: Jerry L. Cochran, 304 S. Park Lane, Altus, OK 73521.

## DIRECTOR OF MEDICAL STAFF

St. Joseph's Hospital and Medical Center in Phoenix, Arizona, 591-bed teaching hospital with a 1,000 member medical staff, is seeking a full-time Director of the Medical Staff. Individual will be responsible for assisting the medical staff committees with quality assurance program, JCAH standards, and medico-administrative functions. Individual will be under the general direction of the medical staff president and the medical staff executive committee. All correspondence confidential. For further information, send inquiries and curriculum vitae to: Medical Staff Office, Theodore Mobley, M.D., Medical Staff President, St. Joseph's Hospital and Medical Center, P.O. Box 2071, Phoenix, Arizona 85001.

## CALIFORNIA

Anesthesiologist wanted in Northern California fee-for-service practice located in Marysville. Area is within easy driving distance of Lake Tahoe, ski and recreation areas, Sacramento and the San Francisco Bay Area. Great year-

round climate with still reasonably priced homes. Modern, progressive, well-equipped hospital with growing medical staff. Attractive relocation incentive. Contact: Judy Neal, 440 Grand Avenue, Suite 500, Oakland, CA 94610, (415) 832-6400.

## REAL ESTATE

### ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### MEDICAL SPACE

Will sub-lease attractive suite in Arizona Medical Plaza, 1728 West Glendale Ave., approximately 1000 sq. ft., many extras. Contact: W. A. Warner, M.D. (602) 254-5777.

### FOR SUBLEASE

Medical space for sublease at 941 S. Dobson, 1000 sq feet; reasonable rate. 2.5 years remaining in the lease, but will consider shorter sublease. Telephone (602) 833-5331.

### MEDICAL OFFICE FOR LEASE

Completed suite (with cabinetry, telephones, wall and floor covering), approx. 1300 sq. ft. Brand new building, located midway between Good Samaritan Hospital and St. Joseph's Hospital. Please call: William Weese, M.D., (602) 265-0000.

### SCOTTSDALE, ARIZONA

Two Scottsdale, Arizona, internists wish to share office space and expenses. Internal Medicine sub-specialty desired. New office space completely furnished with modern diagnostic equipment including x-ray and treadmill. Call (602) 991-9120 or reply to Box 126, c/o Arizona Medicine, 810 W. Bethany Home Road, Phoenix, Arizona 85013.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

## MEMORIAL MEDICAL OFFICE BUILDING

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

### BEAUTIFUL CONDOMINIUM

#### Condominios Pilar

#### San Carlos Bay, Mexico For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

### SCOTTSDALE HOME FOR SALE BY PHYSICIAN OWNER

Fine close in location (vicinity Fashion Square). A well-built family home five minutes for Scottsdale Memorial Hospital. Approximately 2530 sq. ft.; 4 bedrooms plus study; 3 baths; kitchen with top-of-line appliances; heated s/c pool; irrigated lawn; 43 ft. covered patio. Possession April 15. NO AGENTS. \$145,000. For more information call (602) 956-4090 or 941-2543.

### PINETOP MOUNTAIN CABIN - FOR RENT

White Mountain summer home. Ideal now for Winter activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

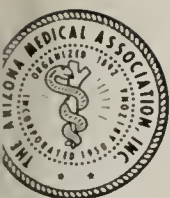
### MESA OFFICE SPACE FOR SUBLEASE

1450 South Dobson Road. On grounds of Desert Samaritan Hospital. 1720 sq. ft. Available after July 1, 1980. Suitable for Family Practice. Internal Medicine or other specialties. Medical equipment may be available (either for lease or sale.) One room designed for x-ray or regular exam room. Contact: 301 W. Chilton, Chandler, Az 85224.

## INDEX TO ADVERTISERS

|                                             |                           |
|---------------------------------------------|---------------------------|
| Abbott Laboratories                         |                           |
| Tranxene Seminars .....                     | 158, 159                  |
| AirEvac .....                               | 232                       |
| Allied Envelope & Printing, Inc. ....       | 231                       |
| The Anesthesia Office, Inc. ....            | 166                       |
| Arizona Laminating .....                    | 162                       |
| Blue Cross/Blue Shield .....                | 164                       |
| Bristol Laboratories                        |                           |
| Tegopen .....                               | 160, 161, 162             |
| Burroughs Wellcome                          |                           |
| Emprirn with Codeine #3 .....               | 224                       |
| Zyloprim .....                              | 157                       |
| Camelback Hospital .....                    | 171                       |
| Classified Ads .....                        | 238, 239                  |
| Computed Neurological Scanning Center ..... | 167                       |
| Computed Tomography .....                   | 235                       |
| Computer Information Systems, Inc. ....     | 163                       |
| Doctors Central Directory .....             | 238                       |
| Eli Lilly & Co.                             |                           |
| Keflex .....                                | 165                       |
| HBA Life Insurance .....                    | 172                       |
| Headache Group .....                        | 231                       |
| Health Agencies of the West .....           | 237                       |
| Health Facilities Development .....         | 175                       |
| Henry & Horne                               |                           |
| Certified Public Accountants .....          | 167                       |
| House of Mailings .....                     | 238                       |
| International Cruise Conference .....       | 227                       |
| Louis Jacobs .....                          | 238                       |
| Medical Bookstore .....                     | 162                       |
| Merrell-National                            |                           |
| Bentyl .....                                | 168, 169, 170             |
| Mica Insurance Co. ....                     | 233                       |
| Mullen Medical Service .....                | 238                       |
| Van O'Steen & Partners .....                | 234                       |
| Phoenix/American Insurance .....            | 238                       |
| Roche Labs                                  |                           |
| Valium .....                                | Second Cover, 157         |
| Bactrim .....                               | Third Cover, Fourth Cover |
| Roswell Bookbinding .....                   | 170                       |
| Danny T. Sievert                            |                           |
| Insurance .....                             | 238                       |
| Smith Kline Diagnostics                     |                           |
| Hemocult .....                              | 223                       |
| Smith Kline & French                        |                           |
| Dyazide .....                               | 173                       |
| St. Luke's Hospital & Medical Center .....  | 226, 235                  |
| Valley National Bank .....                  | 202                       |
| Valley Prosthetics .....                    | 170                       |
| Western Physician                           |                           |
| Purchasing Assoc. ....                      | 236                       |





# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

ISSN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

## SEMINARS IN CONTINUING EDUCATION

### CARDIOLOGY

Medical Care and Cardiology in the  
People's Republic of China.....262

*Jasper L. McPhail, M.D.*

### GASTROENTEROLOGY & LIVER DISEASE

Flexible Sigmoidoscopy.....267

*George E. Burdick, M.D.*

### NEUROLOGY

Mutism, Akinesia, and Fever

A Review.....268

*Russell D. Martin, M.D.*

### ONCOLOGY

Extravasation of Vesicant Antineoplastics:

Clinical and Experimental Findings.....271

*Robert T. Dorr, M.S., R.Ph.*

### PSYCHIATRIC DISORDERS

Psychosurgery:

Government Regulating Medicine .....275

*Warren F. Gorman, M.D., F.A.C.P.*

## SPECIAL ARTICLE

Socialism: From Doctor's Dream to

Doctor's Dilemma.....278

*Jane M. Orient, M.D.*

## STATE OF THE ART

An Approach to Sexually Transmitted

Diseases .....280

*Paul J. Rutala, M.D.*

## EDITORIALS

Student and Faculty

Communications .....289

*Louis J. Kettel, M.D., et al*

Auxiliary Highlights.....289

## MEDICAL HISTORY

Publications of the Arizona

Territorial Medical Society .....290

*John W. Kennedy, M.D.*

## ARMA REPORTS

.....293

## FUTURE MEETINGS

.....296

THE LIBRARY, ACQUISITIONS DIV.  
U. OF CALIF., S.F.  
SAN FRANCISCO, CA. 94143

VIII, NO. 4

# Feelings vs.

*Some people feel that I am misused and overused and that I'm prescribed too often and for too many kinds of problems.*

The FACT is that approximately eight million people, or about 5 percent of the U.S. adult population, will use me during the current year. By contrast, the national health examination survey (1971-1975) found that 25 percent of the U.S. adult population experiences moderate to severe psychological distress. Additionally, studies of patient attitudes revealed that most patients have realistic views regarding the limitations of tranquilizers and a strong conservatism about their use, as evidenced by a general tendency to decrease intake over time. Finally, a six-year, large-scale, carefully conducted national survey showed that the great majority of physicians appropriately prescribe tranquilizers.

*Some people feel that patients being treated with anxiolytic drugs are "weak," can't tolerate the anxieties of normal daily living, and should be able to resolve their problems on their own without the help of medication.*

The FACT is that while most people can withstand normal, everyday anxieties, some people experience excessive and persistent levels of anxiety due to personal or clinical problems. An extensive national survey concluded that Americans who do use tranquilizers have substantial



# Facts

justification as evidenced by their high levels of anxiety. It was further noted that antianxiety drugs are not usually prescribed for trivial, transient emotional problems.

*Some people feel afraid of me because of the stories they've heard about my being harmful and having the potential to produce physical dependence.*

The FACT is that there are thousands of references in the medical literature documenting my efficacy and safety. Extensive and painstakingly thorough studies of toxicological data conclude that I am one of the safest types of psychotropic drugs available. Moreover, I do not cause physical dependence if the recommended dosage and therapeutic regimen are followed under careful physician supervision. However, I can produce dependence if patients do not follow their physicians' directions and take me for prolonged periods, at dosages that exceed the therapeutic range. Patients for whom I have been prescribed should be cautious about their use of alcohol because an additive effect may result.

*Many of the most knowledgeable people feel that I became the No. 1 prescribed medication in America because no other tranquilizer has been proven more effective. Or safer.*

The FACT is they are right.

For a brief summary of product information on Valium (diazepam/Roche) ®, please see the following page. Valium is available as 2-mg, 5-mg and 10-mg scored tablets.

# Valium® diazepam/Roche

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology; spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication, abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Use in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other anti-depressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

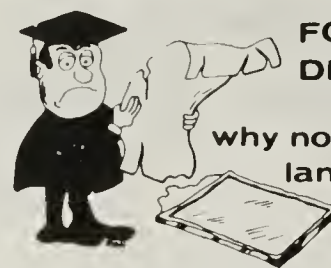
**Dosage:** Individualize for maximum beneficial effect.  
**Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed. Adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg t.i.d. or q.i.d. Geriatric or debilitated patients 2 to 2½ mg t.i.d. or q.i.d. 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated for use under 6 months.

**Supplied:** Valium (diazepam/Roche) Tablets, 2 mg, 5 mg and 10 mg. Bottles of 100 and 500. Tel-E-Dose® packages of 100 available in trays of 4 reverse-numbered times of 25, and in boxes containing 10 strips of 10. Prescription Paks of 50 available in trays of 10.

Roche Laboratories  
Division of Hoffmann-La Roche Inc.  
Nutley, New Jersey 07110

## YOU WORKED HARD

FOR THAT  
DIPLOMA...



it will last a lifetime....

### THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.

7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.

ROCHE





## We've got the prescription for your communications needs.

Mountain Bell has trained a team of specialists in the medical profession. Because doctors and medical professionals have unique communications needs. And their own set of problems.

Our medical specialists understand those problems. They study your daily patient load, staff requirements, and information management areas. They help implement mechanization through time-sharing of computer terminals. And design voice and data communications systems tailored to fit a private practice, or the collective needs of clinics and group practices.

One of the systems we've developed for you is the Horizon® communications system. In addition to the advanced calling features available on larger, more costly PBX equipment, the Horizon system gives you Dial Dictation and Loudspeaker Paging access. Plus Intercom and Speakerphone capabilities. So you minimize time spent by support personnel on placing and receiving phone calls. While speeding exchange of information.

The Horizon communications system is just one example of how our team members can meet the communications needs of your practice. But they can tell you more. Because they've taken the time to learn the medical profession. And they're backed by all the resources of the Bell System.

Let the Mountain Bell specialists in the medical profession give you the remedy to your communications needs.

Call toll-free 1-800-525-2323 (in Colorado, call 1-800-332-2351). Mountain Bell.

\* Registered Trademark of AT&T Company

**The knowledge business**





# DRAMATIC NEW CLINICAL PROOF\*

**In the treatment of impetigo—**

• **100% cure rate with  
Tegopen®** (cloxacillin sodium)

• **only a 60% cure rate with penicillin V-K**



**As seen on  
admission**



**After one week  
of penicillin V-K  
therapy**



**Two weeks after  
initiation of  
TEGOPEN therapy**

Treatment failure was judged to have occurred when lesions increased in size and/or number during the initial week of treatment with penicillin V-K. No treatment failures occurred with Tegopen.

\*Data on file, Bristol Laboratories.

## Brief Summary of Prescribing Information

**TEGOPEN®**  
(cloxacillin sodium)  
Capsules and Oral Solution

For more information, consult Official Package Circular

(12) 9/11/75

### INDICATIONS:

Additional oral indication for cloxacillin sodium is in the treatment of infections due to penicillin-resistant staphylococci, it may be used to initiate therapy in such patients in whom a staphylococcal infection is suspected. (See Important Note below.)  
Microbiologic studies to determine the causative organisms and their sensitivity to cloxacillin sodium should be performed.

### IMPORTANT NOTE

It is recommended that treatment be initiated before definitive culture and sensitivity results are known. The choice of cloxacillin sodium should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci, Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the microbiology report later indicates the infection is due to an organism other than a penicillin-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semi-synthetic penicillin.

Recent studies have reported that the percentage of staphylococcal isolates resistant to penicillin G outside the hospital is increasing, approximating the high percentage of resistant staphylococcal isolates found in the hospital. For this reason, it is recommended that a penicillinase-resistant penicillin be used as initial therapy for any suspected staphylococcal infection until culture and sensitivity results are known.

Cloxacillin sodium is a compound that acts through a mechanism similar to that of methicillin against penicillin G-resistant staphylococci. Strains of staphylococci resistant to methicillin have existed in nature and it is known that the number of these strains reported has been increasing. Such strains of staphylococci have been capable of producing serious disease, in some instances resulting in fatality. Because of this, there is concern that widespread use of the penicillinase-resistant penicillins may result in the appearance of an increasing number of staphylococcal strains which are resistant to these penicillins.

Methicillin-resistant strains are almost always resistant to all other penicillinase-resistant penicillins (cross-resistance with cephalosporin derivatives also occurs frequently). Resistance to any penicillinase-resistant penicillin should be interpreted as evidence of clinical resistance to all, in spite of the fact that minor variations in *in vitro* sensitivity may be encountered when more than one penicillinase-resistant penicillin is tested against the same strain of staphylococcus.

### CONTRAINDICATIONS:

A history of a previous hypersensitivity reaction to any of the penicillins is a contraindication



## RESULTS OF ORAL THERAPY revealed a high percentage of treatment failures with penicillin V potassium, but *no* failures with Tegopen.

|                                                                    |                     | Given Tegopen®<br>(cloxacillin sodium) | Given<br>penicillin V-K |
|--------------------------------------------------------------------|---------------------|----------------------------------------|-------------------------|
| <i>Staphylococcus aureus</i>                                       | (78 patients)       | 39                                     | 39                      |
| Returned to clinic at one week .....                               |                     | 29†                                    | 38†                     |
| Treatment failure at one week .....                                |                     | 0                                      | 18 (47.4%)              |
| <i>Staphylococcus aureus</i> and<br><i>Streptococcus pyogenes</i>  | (9 patients)        | 4                                      | 5                       |
| Returned to clinic at one week .....                               |                     | 4                                      | 5                       |
| Treatment failure at one week .....                                |                     | 0                                      | 2 (40%)                 |
| No initial bacterial growth                                        | (14 patients)       | 9                                      | 5                       |
| All 14 healed, regardless of which<br>antibiotic was administered. |                     |                                        |                         |
| Beta-hemolytic <i>Streptococcus</i>                                | (1 patient)         | 0                                      | 1                       |
| <b>TOTALS:</b>                                                     | <b>102 patients</b> | <b>52 patients</b>                     | <b>50 patients</b>      |

†Eleven patients did not return for their one-week checkup. These were all called by telephone, and their families reported

the lesions had healed. One patient was dropped from the study, early, because of adverse reaction to medication.

### STUDY: DESCRIPTION/PROTOCOL

- 102 nonselected subjects, with initial bacteriology as follows: 77% *Staphylococcus aureus*, 9% mixed *Staphylococcus aureus* and *Streptococcus pyogenes*, and 1% beta-hemolytic *Streptococcus*.†
- All patients were given randomized therapy—Tegopen capsules or oral solution, or penicillin V-K tablets or oral solution, in recommended dosages according to body weight.

- All patients were evaluated after one week's therapy. If there was no improvement, therapy was switched to the other antibiotic. The "other antibiotic" proved to be Tegopen 100% of the time because no treatment failures had occurred with Tegopen.
- A final assessment of progress was made two weeks after initiation of Tegopen therapy.

†The remainder, to equal 100%, consisted of 14 patients (13%) who exhibited no initial bacterial growth. These 14 were all healed, whether given Tegopen or penicillin V-K.

# TEGOPEN®

(cloxacillin sodium)

## —effective therapy for staph infections of the skin and skin structures

#### WARNING:

Serious and occasionally fatal hypersensitivity (anaphylactoid) reactions have been reported in patients on penicillin therapy. Although anaphylaxis is more frequent following parenteral therapy it has occurred in patients on oral penicillins. These reactions are more apt to occur in individuals with a history of sensitivity to multiple allergens.

There have been well documented reports of individuals with a history of penicillin hypersensitivity reactions who have experienced severe hypersensitivity reactions when treated with a cephalosporin. Before therapy with a penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, and other allergens. If an allergic reaction occurs, the drug should be discontinued and the patient treated with the usual agents, e.g., pressor amines, antihistamines, and corticosteroids.

Safety for use in pregnancy has not been established.

#### PRECAUTIONS:

The possibility of the occurrence of superinfections with mycotic organisms or other pathogens should be kept in mind when using this compound, as with other antibiotics. If superinfection occurs during therapy, appropriate measures should be taken.

As with any potent drug, periodic assessment of organ system function, including renal, hepatic, and hematopoietic, should be made during long-term therapy.

#### ADVERSE REACTIONS:

Gastrointestinal disturbances, such as nausea, epigastric discomfort, flatulence, and loose

stools, have been noted by some patients. Mildly elevated SGOT levels (less than 100 units) have been reported in a few patients for whom pretherapeutic determinations were made. Skin rashes and allergic symptoms, including wheezing and sneezing, have occasionally been encountered. Eosinophilia, with or without overt allergic manifestations, has been noted in some patients during therapy.

#### USUAL DOSAGE:

Adults: 250 mg. q. 6h.

Children: 50 mg./Kg./day in equally divided doses q. 6h. Children weighing more than 20 Kg. should be given the adult dose. Administer on empty stomach for maximum absorption.

**N.B. INFECTIONS CAUSED BY GROUP A BETA-HEMOLYTIC STREPTOCOCCI SHOULD BE TREATED FOR AT LEAST 10 DAYS TO HELP PREVENT THE OCCURRENCE OF ACUTE RHEUMATIC FEVER OR ACUTE GLOMERULONEPHRITIS.**

#### SUPPLIED

Capsules—250 mg. in bottles of 100; 500 mg. in bottles of 100.

Oral Solution—125 mg./5 ml. in 100 ml. and 200 ml. bottles.

**BRISTOL®**

Bristol Laboratories  
Division of Bristol-Myers Company  
Syracuse, New York 13201

Copyright © 1981, Bristol Laboratories



# THE ARIZONA MEDICAL ASSOCIATION, INC.

## "SECURITY PACKAGE"

The key word in any insurance program is security. ArMA's Board of Directors, working with the Medical Economics Committee and ArMA staff, has sponsored carefully designed insurance programs placed with excellent companies. The set-up of the over-all administration and local servicing assures you of prompt and courteous service in the unhappy event that you or your family should have a claim. Programs with service you can count on: **That's Security.**

The **Dean S. Davidson Insurance Agency, Inc.**, with over 40 years of experience in all lines of insurance (including several Arizona associations), and offices in Phoenix and Tucson, provides local service for all members. Should you need assistance at any time, trained personnel are available by phone or in person to assure efficient, thorough handling of your insurance programs.

The **Southern California Agency** has been working with ArMA for almost 30 years. Its affiliate, **Health Agencies of the West, Inc.**, coordinates the full administration (marketing, underwriting, billing, and claims services) of all insurance programs. They are specialists in professional association group insurance, who provide the finishing touches to our "SECURITY PACKAGE".

### Term Life Insurance

underwritten by  
Fireman's Fund



American Life Insurance Company

### Defendant's Reimbursement Insurance



underwritten by

National Casualty Company

### Spouse Life Insurance

underwritten by  
Lincoln American Life  
Insurance Company



### Professional Overhead Expense Insurance



underwritten by Occidental Life  
Insurance Company of California

### Disability Income Insurance

underwritten by  
National Casualty Company



Administered by

### Accidental Death & Dismemberment Insurance



underwritten by  
Fireman's Fund

American Life Insurance Company

## HEALTH AGENCIES OF THE WEST, INC.

*And Locally Serviced by*

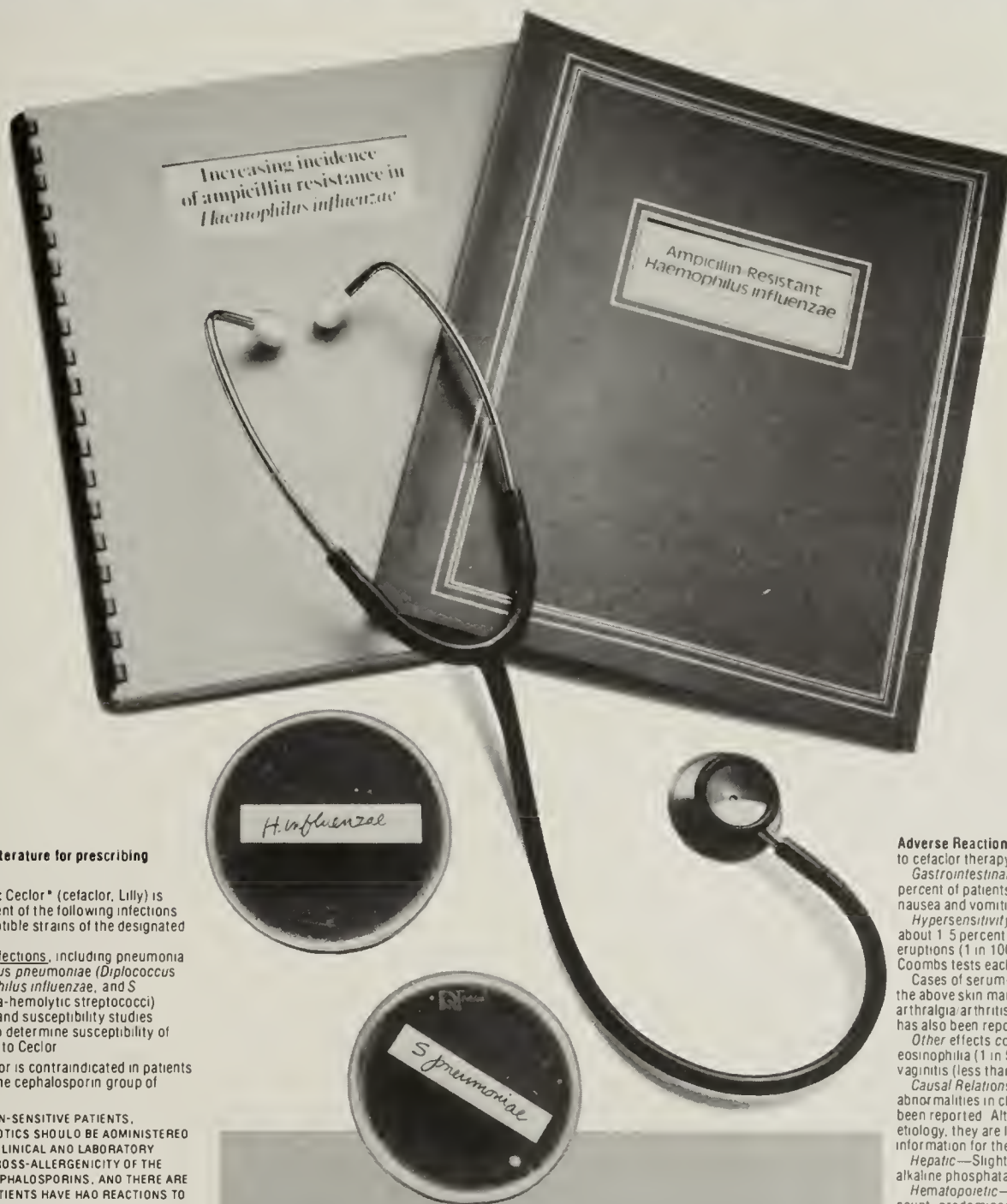
### DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200  
Phoenix, Arizona 85016  
(602) 277-6672

630 Craycroft Road  
Tucson, Arizona 85711  
(602) 745-0793



# An added complication... in the treatment of bacterial bronchitis\*



**Brief Summary.** Consult the package literature for prescribing information.

**Indications and Usage:** Cefclor\* (cefclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

**Lower respiratory infections,** including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor.

**Contraindication:** Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

**Warnings:** IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS TO BOTH DRUG CLASSES (INCLUDING ANAPHYLAXIS AFTER PARENTERAL USE).

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

**Precautions:** If an allergic reaction to cefclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

**Usage in Pregnancy—**Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in fetuses given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

**Usage in Infancy—**Safety of this product for use in infants less than one month of age has not been established.

**Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis\*—are sensitive to treatment with Cefclor.<sup>1-6</sup>**

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.<sup>7</sup>

# Cefclor®

## cefclor

Pulvules®, 250 and 500 mg

**Adverse Reactions:** Adverse effects considered related to cefclor therapy are uncommon and are listed below. **Gastrointestinal** symptoms occur in about 2-5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

**Hypersensitivity** reactions have been reported in about 1-5 percent of patients and include morbilliform eruptions (1 in 100), pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients.

Cases of serum-sickness-like reactions, including the above skin manifestations, fever, and arthralgia/arthritis, have been reported. Anaphylaxis has also been reported.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

**Causal Relationship Uncertain—**Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

**Hepatic—**Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

**Hematopoietic—**Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

**Renal—**Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

\*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

**Note:** Cefclor\* (cefclor) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

#### References

1. Antimicrob. Agents Chemother. 9:1, 1975.
2. Antimicrob. Agents Chemother. 11:1, 1977.
3. Antimicrob. Agents Chemother. 12:1, 1978.
4. Antimicrob. Agents Chemother. 12:490, 1977.
5. Current Chemotherapy, 1978, by W. Siegenthaler and R. Luthy, II, 880, Washington, D.C.: American Society for Microbiology, 1978.
6. Antimicrob. Agents Chemother., 13:861, 1978.
7. Data on file, Lilly and Company.
8. Principles and Practice of Infectious Diseases (edited by W. Mandell, R.G. Douglas, Jr., and J.E. Bennett), p. 487. New York: John Wiley & Sons, 1979.



Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285. Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630.





# Our goal is to help you reach yours.

From medical school through retirement, your financial needs are continually changing. And your time to look after those needs is limited.

That's why Valley Bank has Medical Banking Specialists—trained in the financial needs of medical professionals.

Talk to us about credit and our many other services. They're outlined in our new

brochure: "Financial Services for Medical Professionals."

For more information, call Chuck Green, Vice President and Manager of Professional Services in Phoenix, at 261-2718. In Mesa, call Maria Evans, Medical Banking Specialist, at 261-1890. And in Tucson, call Brenda Koedyker, Assistant Vice President, at 792-7531.

**We go out of our way for you. Valley National Bank**



Member FDIC Equal Opportunity Lender



# Pioneers in Medicine For the Family



## BOOTS PHARMACEUTICALS, INC.

Operating in the U.S. since 1977, Boots is a world-wide leader in pharmaceutical research and manufacture. Boots has directed its efforts toward providing products useful in the practice of family medicine.

Some of our better known products are Lopurin™, Ru-Tuss® and Ru-Vert®. This advertisement highlights four other products particularly useful for the family.

**F-E-P CREME** • **SU-TON**® • **TWIN-K** • **TWIN-K-CI**™





For the Majority of  
Steroid-Responsive Dermatoses\*  
Seen in Family Practice

## F-E-P CREME®

(Iodochlorhydroxyquin — Pramoxine HCl — Hydrocortisone)

### The 4 in 1 Corticosteroid Cream

Anti-inflammatory, antifungal, antibacterial actions, and, uniquely, a topical anesthetic for immediate relief of the itching or burning that frequently accompanies skin problems. One size (½ ounce), one strength for ease of prescription.

\*This drug has been evaluated as possibly effective for these indications.  
See prescribing information on last page of this advertisement.

For the Geriatric Patient

## SU-TON®

### Liquid Tonic

A pleasant tasting prescription tonic containing iron, vitamins, minerals, an analeptic and 18% alcohol. Ideal for those who may benefit from vitamin deficiency prevention. Just one tablespoon before each meal.

Each 45 ml (3 tablespoonfuls) contains:

|                                          |        |
|------------------------------------------|--------|
| Pentylentetrazol.                        | 30 mg  |
| Niacin.                                  | 50 mg  |
| Vitamin B-1.                             | 10 mg  |
| Vitamin B-2.                             | 5 mg   |
| Vitamin B-6.                             | 1 mg   |
| Vitamin B-12.                            | 3 mcg  |
| Choline.                                 | 100 mg |
| Inositol.                                | 50 mg  |
| Manganese (as Manganese Sulfate).        | 1 mg   |
| Magnesium (as Magnesium Sulfate).        | 2 mg   |
| Zinc (as Zinc Sulfate).                  | 1 mg   |
| Iron (as Ferric Pyrophosphate, Soluble). | 22 mg  |
| Alcohol.                                 | 18%    |

See prescribing information on last page of this advertisement.





## For Potassium Supplementation Improved Compliance...

# TWIN-K®

Each 15 ml supplies 20 mEq of potassium ions as a combination of potassium gluconate and potassium citrate in a sorbitol and saccharin solution.

The good tasting potassium supplement  
Designed for prophylactic and therapeutic use  
with diuretics and adrenocorticoids.  
Pleasant taste and convenient dosage aid  
patient compliance.

The organic salt of potassium can be given as a  
liquid without producing significant gastric  
symptoms and without an untoward effect on  
the mucosa of the small intestine.<sup>1</sup>

Beeson-McDermott, Textbook of Medicine, 15th Ed. 1979, WB Saunders Co.,  
Philadelphia, page 1959

## In Cases with Chloride Deficiency...

# TWIN-K-Cl™

Each 15 ml supplies 15 mEq of potassium ions and 4 mEq of chloride ions as a  
combination of potassium gluconate, potassium citrate, and ammonium chloride in a  
sorbitol and saccharin solution.

The good tasting potassium supplement with  
chloride

- In hypokalemic hypochloremic alkalosis, chloride ions are required. Twin-K-Cl is specially formulated to be a good tasting chloride containing potassium supplement.
- Contains no potassium chloride. Twin-K-Cl is a carefully balanced combination of organic potassium salts plus ammonium chloride.
- In hypochloremic patients, potassium should be provided as the chloride salt, or chloride ion must be made available in some other form, such as ammonium chloride or sodium chloride.<sup>1</sup>

See prescribing information on last page of this advertisement.





## F-E-P CREME

### DESCRIPTION

F-E-P Creme is a topical water soluble anti-inflammatory, anesthetic preparation intended for treatment of various inflammatory skin disorders. The drug contains the following active ingredients:

|                         |      |
|-------------------------|------|
| Iodochlorhydroxyquin    | 3.0% |
| Pramoxine Hydrochloride | 0.5% |
| Hydrocortisone          | 1.0% |

### INDICATIONS AND USAGE

Based on a review of this drug by the National Academy of Sciences-National Research Council and/or other information, FDA has classified the indications as: "Possibly" effective: Contact or atopic dermatitis; impetiginized eczema; nummular eczema; infantile eczema; endogenous chronic infectious dermatitis; stasis dermatitis; pyoderma; nuchal eczema and chronic eczematoid otitis externa; acne urtica; localized or disseminated neurodermatitis; lichen simplex chronicus; anogenital pruritus (vulvae, scroti, ani); folliculitis; bacterial dermatoses; mycotic dermatoses such as tinea (capitis, cruris corporis, pedis); moniliasis; intertrigo. Final classification of the less-than-effective indications requires further investigation.

Pramoxine Hydrochloride promptly relieves pain and itch. This compound may be used safely on the skin of those patients sensitive to the "caine" type local anesthetics.

### CONTRAINDICATIONS

Hypersensitivity to F-E-P Creme, or any of its ingredients or related compounds; lesions of the eye; tuberculosis of the skin; most viral skin lesions (including herpes simplex, vaccinia and varicella).

### WARNINGS

This product is not for ophthalmic use.

In the presence of systemic infections, appropriate antibiotics should be used.

### USE IN PREGNANCY

Topical steroids have not been reported to have an adverse effect on pregnancy. However, fetal abnormalities have been produced in pregnant laboratory animals that have been exposed to large doses of topical corticosteroids. Drugs of this class should not be used extensively during pregnancy.

### PRECAUTIONS

F-E-P Creme may be irritating to the skin in some patients. If irritation occurs discontinue therapy. Staining of clothes or hair may also occur with use of this preparation. Although systemic toxicity has not been reported with this drug, adrenal pituitary suppression is possible, especially when the drug is used extensively or kept under an occlusive dressing for a prolonged period.

Iodochlorhydroxyquin can be absorbed through the skin and interfere with thyroid function tests. Therapy with this preparation should stop at least a month before performance of these tests. The ferric chloride test for phenylketonuria (PKU) can be positive if F-E-P Creme is on the diaper or in the urine.

Prolonged use of this drug may result in an overgrowth of non-susceptible organisms requiring appropriate therapy.

### ADVERSE REACTIONS

Skin rash or hypersensitivity may occur following topical application.

The following local adverse reactions have been reported with topical corticosteroids, especially under occlusive dressings: burning, itching, irritation, dryness, folliculitis, hypertrichosis, acneiform eruptions, hypopigmentation, perioral dermatitis, allergic contact dermatitis, maceration of the skin, secondary infection, skin atrophy, striae, miliaria. Discontinue therapy if untoward reactions occur.

### DOSAGE AND ADMINISTRATION

Apply a thin layer of the drug to affected parts 3-4 times daily.

### NOTE:

1. F-E-P Creme is distributed with 3.0% iodochlorhydroxyquin for use when antibacterial/antifungal activity is desired.
2. F-E-P Creme (Plain) is the regular formulation, but without iodochlorhydroxyquin.

Both of these preparations contain pramoxine hydrochloride, which has topical anesthetic properties. Pramoxine is not chemically related to benzoic acid or amide type topical anesthetics. Patients can tolerate pramoxine although they may be sensitive to other "caine" type of topical or local anesthetics.

### HOW SUPPLIED

F-E-P Creme 1/2 ounce (15 gm) tubes NDC 0524-0026-S1  
F-E-P Creme Plain 1/2 ounce (15 gm) tubes NDC 0524-0025-S1  
Federal law prohibits dispensing without a prescription.  
July 1980

## SU-TON®

### DESCRIPTION

Forty-five milliliters of SU-TON contain the following ingredients:

|                                         |        |
|-----------------------------------------|--------|
| Pentylenetetrazol                       | 30 mg  |
| Niacin                                  | 50 mg  |
| Vitamin B-1                             | 10 mg  |
| Vitamin B-2                             | 5 mg   |
| Vitamin B-6                             | 1 mg   |
| Vitamin B-12                            | 3 mcg  |
| Choline                                 | 100 mg |
| Inositol                                | 50 mg  |
| Manganese (as Manganese Sulfate)        | 1 mg   |
| Magnesium (as Magnesium Sulfate)        | 2 mg   |
| Zinc (as Zinc Sulfate)                  | 1 mg   |
| Iron (as Ferric Pyrophosphate, Soluble) | 22 mg  |
| Alcohol                                 | 18%    |

### INDICATIONS AND USAGE

SU-TON contains pentylenetetrazol which may be helpful in the treatment of patients with mental confusion and delirium. If these effects are present, SU-TON also contains vitamins, B-1, B-2, B-6, B-12, and iron, for those patients who may benefit by the development of a deficiency.

### CONTRAINDICATIONS

SU-TON is contraindicated in patients with known or suspected hypersensitivity to any of the listed ingredients.

### WARNINGS

Use of this preparation during pregnancy and lactation has not been established. Therefore, the drug requires that the physician exercise caution in the use of the drug against any possible hazards to mother and child.

### PRECAUTIONS

Although there are no absolute contraindications to pentylenetetrazol, it should be used with caution in epileptic patients or those known to have a low convulsive threshold or a focal brain lesion. Caution should be exercised when treating patients with high doses of SU-TON who have heart disease. While pentylenetetrazol does not act directly on the myocardium, the results from central vagal stimulation could cause bradycardia.

### ADVERSE REACTIONS

Pentylenetetrazol in high doses may produce toxic symptoms typical of central nervous system stimulants, which act on the higher motor centers and the spinal cord. Convulsions resulting from this drug are spontaneous and are not induced by external stimuli. They usually last for several minutes and are followed by profound depression and respiratory paralysis. Death has been reported from the ingestion of 10 grams of pentylenetetrazol.

### DRUG ABUSE

Drug dependence has not been reported with SU-TON.

### OVERDOSAGE

Signs and symptoms of acute overdose may be due principally from overstimulation of the central nervous system and from excessive vasodilatation with resulting autonomic nervous system imbalance. The symptoms may include the following: vomiting, agitation, tremors, hyperreflexia, sweating, confusion, hallucinations, headache, hyperpyrexia, tachycardia. Treatment consists of appropriate supportive measures. If signs and symptoms are not too severe and the patient is conscious, gastric evacuation may be accomplished by induction of emesis or gastric lavage.

Intensive care must be provided to maintain adequate circulation and respiratory exchange.

### DOSAGE AND ADMINISTRATION

One tablespoonful (15 ml) 3 times a day 20-30 minutes before meals. This drug is not for use in children under 12 years of age.

### HOW SUPPLIED

Bottles of 473 ml (16 fl oz) NDC 0524-0015-16  
Federal law prohibits dispensing without prescription.  
February 1980

## TWIN-K

### DESCRIPTION

Each 15 milliliter (one tablespoonful) supplies 20 mEq of potassium ions as a combination of potassium gluconate and potassium citrate in a sorbitol and saccharin solution.

### INDICATIONS AND USAGE

For use as oral potassium therapy in the prevention or treatment of hypokalemia which may occur secondary to diuretic or corticosteroid administration. It may be used in the treatment of cardiac arrhythmias due to digitalis intoxication.

### CONTRAINDICATIONS

Severe renal impairment with oliguria or azotemia, untreated Addison's disease, adynamia episodica hereditaria, acute dehydration, heat cramps and hyperkalemia from any cause. This product should not be used in patients receiving aldosterone antagonists or triamterene.

### WARNINGS

TWIN-K (potassium gluconate and potassium citrate) is a palatable form of oral potassium replacement. It appears that little if any potassium gluconate-citrate penetrates as far as the jejunum or ileum where enteric coated potassium chloride lesions have been noted. Excessive, undiluted doses of TWIN-K may cause a saline laxative effect.

To minimize gastrointestinal irritation, it is recommended that TWIN-K be taken with meals or diluted with water or fruit juice. A tablespoonful (15 ml) in 8 ounces of water is approximately isotonic. More than a single tablespoonful should not be taken without prior dilution.

### PRECAUTIONS

Potassium is a major intracellular cation which plays a significant role in body physiology. The serum level of potassium is normally 3.8-5.0 mEq/liter. While the serum or plasma level is a poor indicator of total body stores, a plasma or serum level below 3.5 mEq/liter is considered to be indicative of hypokalemia.

The most common cause of hypokalemia is excessive loss of potassium in the urine. However, hypokalemia can also occur with vomiting, gastric drainage and diarrhea.

Usually a potassium deficiency can be corrected by oral administration of potassium supplements. With normal kidney function, it is difficult to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution since, usually, the exact amount of the deficiency is not accurately known. Checks on the patient's clinical status and periodic EKG and/or serum potassium levels should be made. High serum potassium levels may cause death by cardiac depression, arrhythmias or arrest.

In patients with hypokalemia who also have alkalosis and a chloride deficiency (hypokalemic hypochloremic alkalosis), there will be a requirement for chloride ions. TWIN-K is not recommended for use in these patients.

### ADVERSE REACTIONS

Symptoms of potassium intoxication include paresthesias of the extremities, flaccid paralysis, listlessness, mental confusion, weakness and heaviness of the legs, fall in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of the QRS complex, changes of the ST segment and tall peaked T waves.

TWIN-K taken on an empty stomach in undiluted doses larger than 30 ml can produce gastric irritation with nausea, vomiting, diarrhea, and abdominal discomfort.

### OVERDOSAGE

The administration of oral potassium supplements to persons with normal kidney function rarely causes serious hyperkalemia. However, if the renal excretory function is impaired, potentially fatal hyperkalemia can result. It is important to note that hyperkalemia is usually asymptomatic and may be manifested only by an increased serum potassium concentration with or without EKG changes. Treatment measures include:

1. Elimination of potassium containing drugs or foods.
2. Intravenous administration of 300 to 500 ml/hr of a 10% dextrose solution containing 10-20 units of crystalline insulin per 1000 milliliters.
3. Correction of acidosis.
4. Use of exchange resins or peritoneal dialysis.

In treating hyperkalemia, it should be noted that patients stabilized on digitalis can develop digitalis toxicity when the serum potassium concentration is changed too rapidly.

### DOSAGE AND ADMINISTRATION

The usual adult dosage is one tablespoonful (15 ml) in 6-8 fluid ounces of water or fruit juice, two to four times a day. This will supply 40 to 80 mEq of potassium ions. The usual preventative dose of potassium is 20 mEq per day while therapeutic doses range from 30 mEq to 100 mEq per day. Because of the potential for gastrointestinal irritation, undiluted large single doses (30 ml or more) of TWIN-K are to be avoided.

Deviations from this schedule may be indicated, since no average total daily dose can be defined, but must be governed by close observation for clinical effects.

### HOW SUPPLIED

Bottles of 1 pint (16 fl oz)

NDC 0524-0021-16

### CAUTION

Federal law prohibits dispensing without prescription.  
July 1980

## TWIN-K-CI™

### DESCRIPTION

Each 15 ml (one tablespoonful) supplies 15 mEq of potassium ions and 4 mEq of chloride ions as a combination of potassium gluconate, potassium citrate, and ammonium chloride, in a sorbitol and saccharin solution.

### INDICATIONS

For use as oral potassium therapy in the prevention or treatment of hypokalemia which may occur secondary to diuretic or corticosteroid administration. It may be used in the treatment of cardiac arrhythmias due to digitalis intoxication.

Potassium and chloride are usually the salts of choice in the treatment of hypokalemia since chloride and potassium deficiencies are likely to be associated with each other.

### CONTRAINDICATIONS

Severe renal impairment with oliguria or azotemia, untreated Addison's disease, adynamia episodica hereditaria, acute dehydration, heat cramps and hyperkalemia from any cause. This product should not be used in patients receiving aldosterone antagonists or triamterene.

### WARNINGS

TWIN-K-CI is a palatable form of oral potassium replacement. Excessive, undiluted doses of TWIN-K-CI may cause a saline laxative effect.

To minimize gastrointestinal irritation, it is recommended that TWIN-K-CI be taken with meals or diluted with water or fruit juice. A tablespoonful (15 ml) in 8 ounces of water is approximately isotonic. More than a single tablespoonful should not be taken without prior dilution.

### PRECAUTIONS

Potassium is a major intracellular cation which plays a significant role in body physiology. The serum level of potassium is normally 3.8-5.0 mEq/liter. While the serum or plasma level is a poor indicator of total body stores, a plasma or serum level below 3.5 mEq/liter is considered to be indicative of hypokalemia.

The most common cause of hypokalemia is excessive loss of potassium in the urine. However, hypokalemia can also occur with vomiting, gastric drainage and diarrhea.

Usually a potassium deficiency can be corrected by oral administration of potassium supplements. With normal kidney function, it is difficult to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution since, usually, the exact amount of the deficiency is not accurately known. Checks on the patient's clinical status and periodic EKG and/or serum potassium levels should be made. High serum potassium levels may cause death by cardiac depression, arrhythmias or arrest.

In patients with hypokalemia who also have alkalosis and a chloride deficiency (hypokalemic hypochloremic alkalosis), there will be a requirement for chloride ions. TWIN-K-CI is recommended for use in these patients.

### ADVERSE REACTIONS

Symptoms of potassium intoxication include paresthesias of the extremities, flaccid paralysis, listlessness, mental confusion, weakness and heaviness of the legs, fall in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of the QRS complex, changes of the ST segment and tall peaked T waves.

TWIN-K-CI taken on an empty stomach in undiluted doses large than 30 ml can produce gastric irritation with nausea, vomiting, diarrhea, and abdominal discomfort.

### OVERDOSAGE

The administration of oral potassium supplements to persons with normal kidney function rarely causes serious hyperkalemia. However, if the renal excretory function is impaired, potentially fatal hyperkalemia can result. It is important to note that hyperkalemia is usually asymptomatic and may be manifested only by an increased serum potassium concentration with or without EKG changes.

Treatment measures include:

1. Elimination of potassium containing drugs or foods.
2. Intravenous administration of 300 to 500 ml/hr of a 10% dextrose solution containing 10-20 units of crystalline insulin per 1000 milliliters.
3. Correction of acidosis.
4. Use of exchange resins or peritoneal dialysis.

In treating hyperkalemia, it should be noted that patients stabilized on digitalis can develop digitalis toxicity when the serum potassium concentration is changed too rapidly.

### DOSAGE AND ADMINISTRATION

The usual adult dosage is one tablespoonful (15 ml) in 6-8 fluid ounces of water or fruit juice, two to four times a day. This will supply 30 to 60 mEq of potassium ions and 8 to 16 mEq of chloride ions. The usual preventative dose of potassium is 20 mEq per day while therapeutic doses range from 30 mEq to 100 mEq per day. Because of the potential for gastrointestinal irritation, undiluted large single doses (30 ml or more) of TWIN-K-CI are to be avoided.

Deviations from this schedule may be indicated, since no average total daily dose can be defined, but must be governed by close observation for clinical effects.

**HOW SUPPLIED** Bottles of 1 pint (16 fl oz)

NDC 0524-0022-16



MANUFACTURED & DISTRIBUTED BY

**Boots Pharmaceuticals, Inc.**

Shreveport, Louisiana 71106

**Pioneers in Medicine For the Family**



# Another good reason to insure with **MICA** is YOUR ownership of **MICA**.

The Company is owned by the physicians who are MICA policyholders.

MICA exists for the benefit of the physicians of Arizona. Its basic objective is to provide a stable and continuous medical malpractice insurance facility charging reasonable rates for the coverages offered.

**For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402**

MICA MICA **MICA** MICA

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association

# COMPUTED TOMOGRAPHY, LTD.

## Cranial and Body CT Scanning

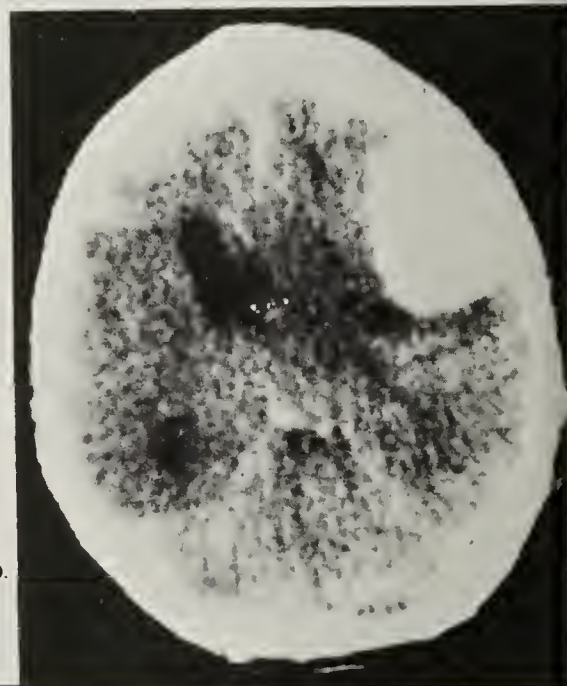
ARIZONA MEDICAL PLAZA  
1728 WEST GLENDALE AVENUE, SUITE LL3  
PHOENIX, ARIZONA  
PHONE 995-1557

**DELTA 50**  
**DELTA 2020**  
**2 Sec. Scanner**

PLAZA DEL RIO MEDICAL CENTER  
9419 WEST THUNDERBIRD ROAD  
SUN CITY, ARIZONA  
PHONE 972-1127



WALTER J. BROWN, M.D.  
JOHN B. FOX, M.D.  
ALFRED J. DELLA ROCCA, M.D.  
LELAND E. SARGENT, M.D.  
DONALD A. TOBIAS, M.D.  
ROBERT S. WALDMAN, M.D.



## They don't have to hurt anymore.

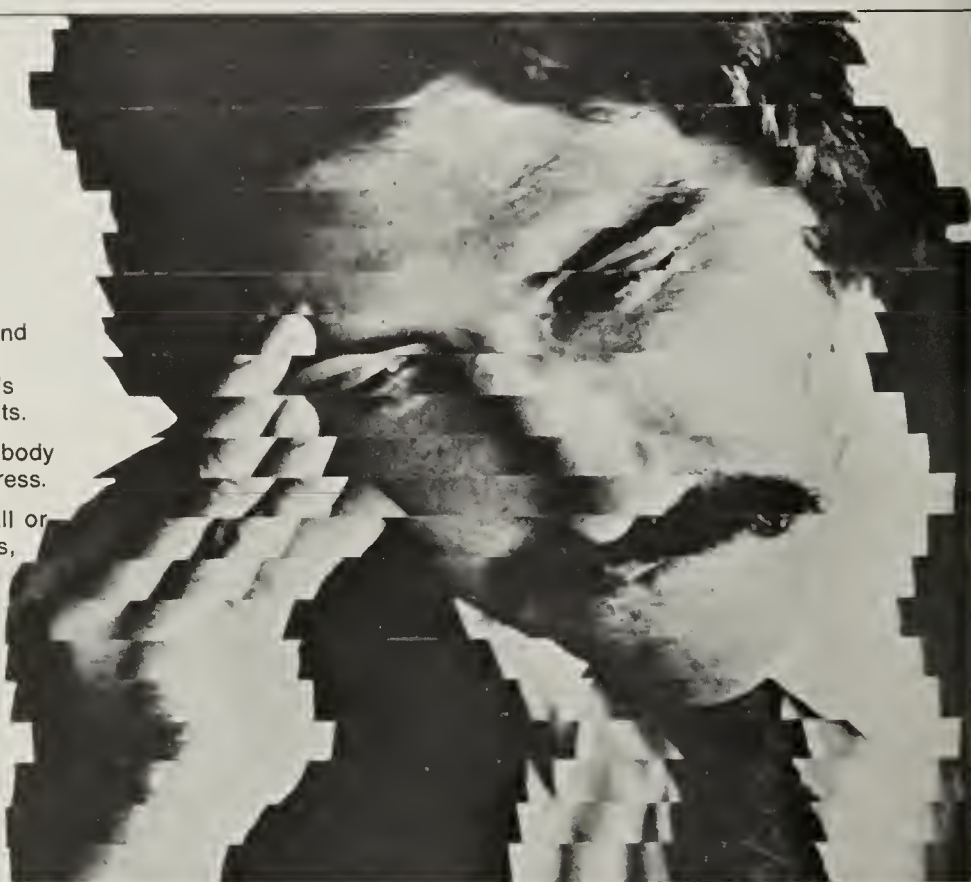
When conventional treatment methods, such as drugs and surgery, have failed to alleviate patients' chronic pain symptoms, many doctors have referred them to St. Luke's Hospital Pain & Stress Reduction Center with good results.

A patient can be taught to gain control over his own body systems in order to regulate pain signals and reduce stress.

For a descriptive brochure and specific information, call or write Dr. Robert Barnes, M.D., Medical Director or Barry Weiss, Ph.D., Administrator, at 367 North 21st Avenue, Phoenix, Arizona, (602) 258-6083.



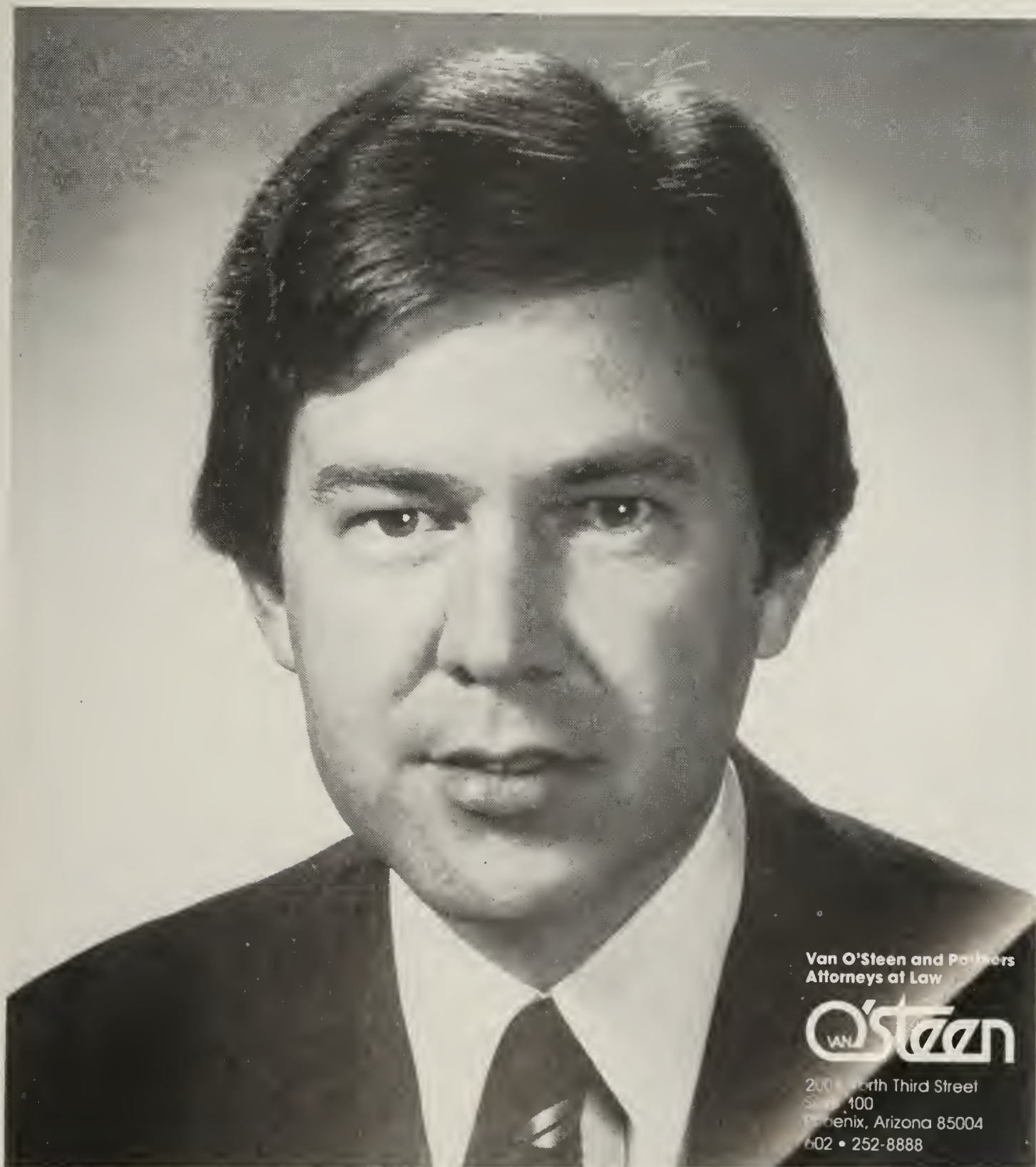
*St. Luke's Hospital  
Medical Center*





# What doctors should know. . . about lawyers

A physician's license to practice medicine is his or her most valuable asset. In Arizona, it can be suspended or permanently revoked by the Board of Medical Examiners based on the complaint of a single disgruntled patient. We strongly recommend that you discuss all Board inquiries with a lawyer who handles Administrative Law matters.



Van O'Steen and Partners  
Attorneys at Law

**O'Steen**  
VAN

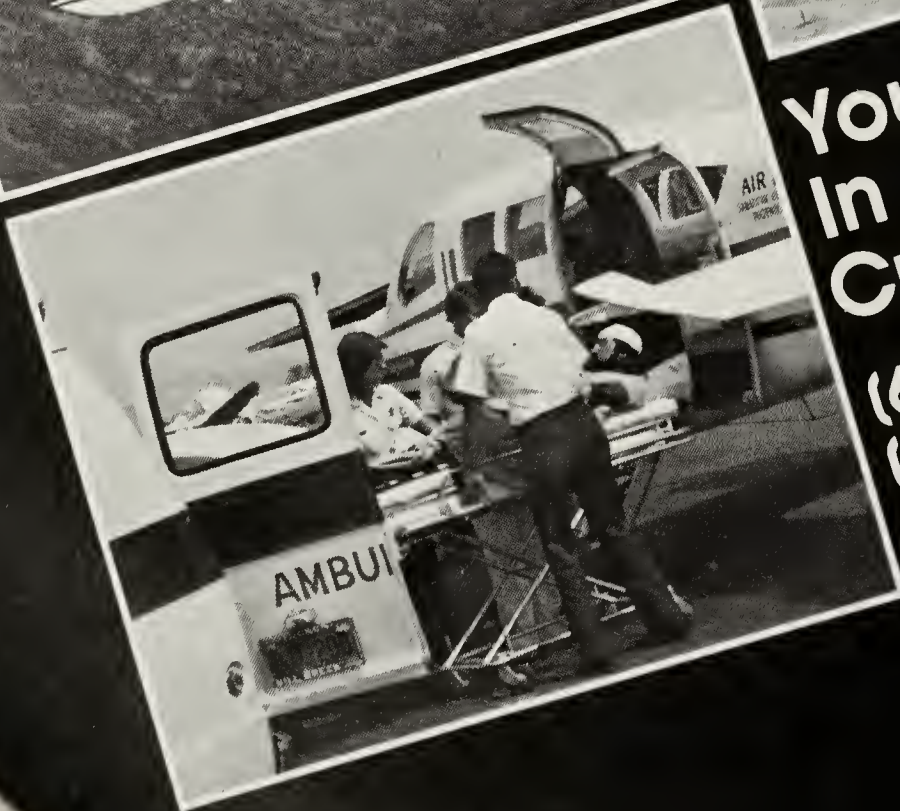
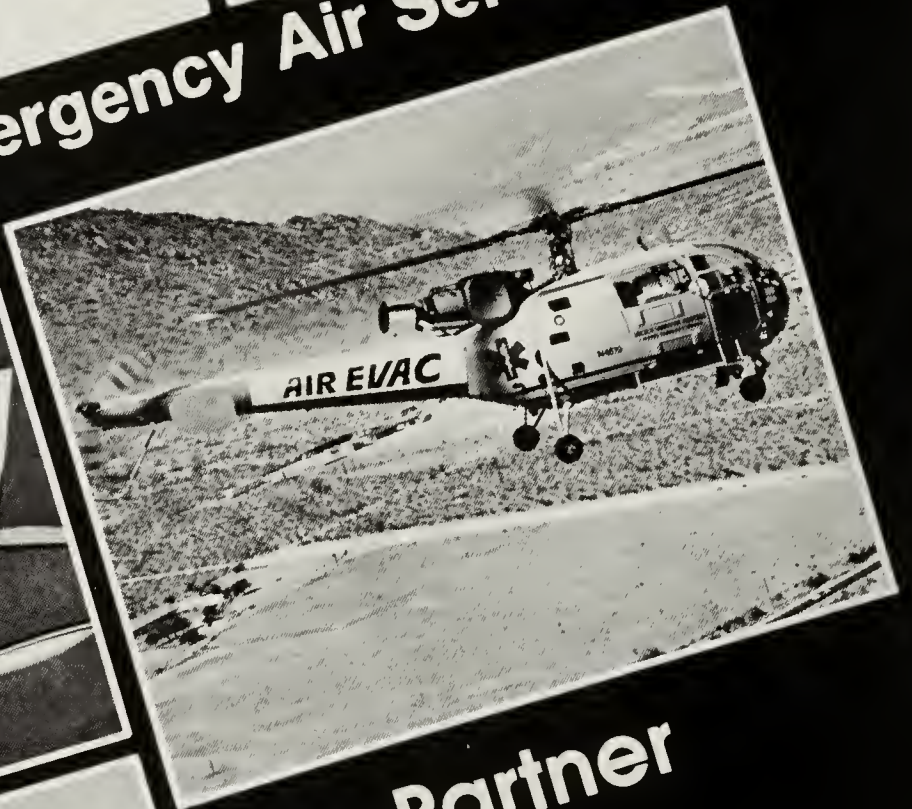
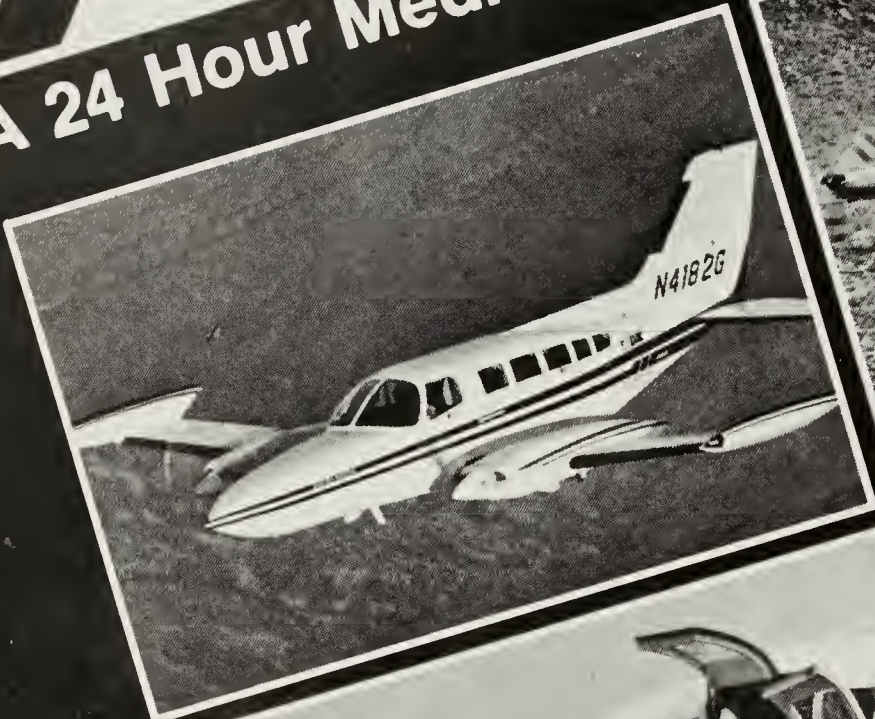
200 North Third Street  
Suite 100  
Phoenix, Arizona 85004  
602 • 252-8888



Lincoln Samaritan

# AIR EVAC

A 24 Hour Medical Emergency Air Service



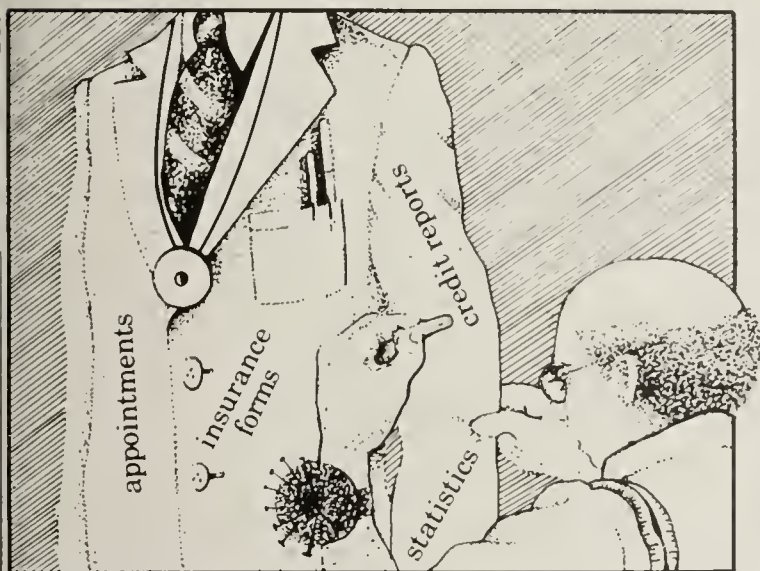
**Your Partner  
In  
Critical Care**  
**(602) A-I-R-E-V-A-C  
(247-3822)**

**Our name is our number**  
**Serving Arizona and the Nation**  
**Since 1969**



# NOW, AN AFFORDABLE COMPUTER SYSTEM TAILORED TO FIT YOUR PRACTICE

The ACT-OMEGA System:  
Every Day Without It Could Be Costing You Money



## WHY?

1. All your bookkeeping needs can be handled simply and efficiently, including billing, credit records, appointments, general ledger and payroll.
2. The system quickly prepares your claim forms to speed your payments from insurance companies.
3. You receive current credit reports to help you control your overdue patient payments.
4. You have fast and comprehensive access to all patient-related information, including physician statistics by diagnosis and type of procedure.

5. You receive important management reports such as physician's reports giving the number of new patients seen, the office revenue provided, and expenses incurred by both the individual doctor and the group as a whole.

PLUS many more features to help you manage your practice more efficiently. We adapt to you. We don't ask you to adapt to us.

ACT-OMEGA has been providing medical information management systems in the valley since 1970. As a division of Advanced Computer Techniques Corporation, it is part of a multi-national information processing, products, consulting and services organization.

We can work with you three ways: Set up a computer system in your office, put a terminal in your office connected to our computer, or give us your paper work and we'll do the work for you. Which ever system you choose, ACT-OMEGA has the systems to make your growth easy and profitable.

Call ACT-OMEGA now to find out how affordable your computer system can be . . . You may be surprised how quickly a computer can pay for itself.

# ACT-OMEGA

222 N. Central, Suite 101 Phoenix, Arizona 85004 602/258-3222



*Cardiology*

## Medical Care and Cardiology in the People's Republic of China

Jasper L. McPhail, M.D.

Editor:  
Kenneth B. Desser, M.D.

Dr. McPhail participated in a Sino-American Clinical Study tour under the direction of Dr. Dwight E. Harken of Harvard University. The group of 35, cardiologists and cardiac surgeons, attended seminars, lectures and clinical experiences with their Chinese colleagues in Peking, Shanghai, Hangchow and Canton.

China is currently populated by one billion people. Population growth control is essential to the national health and has been given top priority. Chinese women are now permitted to marry at the age of twenty-five and men at the age of twenty-eight years. Couples are allowed to have one child. Free birth control information and supplies are furnished. If a second pregnancy occurs, the woman is expected to get an abortion. If the couple elects to have a second child, they lose part of their monthly monetary allowance and get no allowance for food, medical care or education for the second child. These measures were apparently effective in achieving a zero population growth recently in Shanghai.

Community health workers at the grass-roots level have named themselves "barefoot doctors."<sup>1</sup> There is one barefoot doctor for every 400 Chinese people. They work independently of other "doctors" and health workers. They have a minimum of five years of

grammar school education followed by six months of intensive technical training in sanitation and preventive measures. Annually, they have continuing education and advanced short courses. The tour group requested to visit with and interview some barefoot doctors, but the opportunity was never provided. During a half-day visit to a commune, not a barefoot doctor was to be found even at the dispensary/clinic. Finally, the tour guide admitted that the national tourist bureau did not think that these workers had sophisticated enough education for an interchange with Western physicians. As a group, it was disappointing that we were underestimated in our capacity to relate and interact with health workers at any level.

Medical education as it has been reestablished after the revolution is radically different from what it was previously.<sup>2</sup> Students are selected on the basis of social class origin, academic performance in secondary school, national service in a factory or commune for two years, approval of the revolutionary committee for "correct thought", stipend support from their commune or factory, and a competitive entrance examination.

Approximately 450 secondary medical schools take in junior middle school graduates and offer a three-year curriculum. The emphasis is on general medicine, traditional Chinese herbal medicine, public health,



maternal and child care. These schools also train dental technicians, nurses, midwives, pharmacists and roentgenological or laboratory technicians. National policy requires all students in scientific schools of medicine to spend thirty percent of their time studying traditional Chinese medicine, acupuncture and moxibustion.\*

### Current Health Problems

The incidence of cardiovascular disease has doubled since 1960. Strokes and coronary artery disease lead the list of causes of death. Rheumatic heart disease is the second most common cardiac disease. Hypertension has tripled in the past thirty years and may contribute significantly to the increase in coronary artery disease.

The reasons for these marked increases in cardiovascular disease are not totally clear. The Chinese diet has been radically altered. They eat less rice and consume large quantities of pork. Many inhabitants are heavy smokers and are not being taught that cigarette smoking is related to the early development of cardiovascular disease. The younger followers of Chairman Mao are taught to sublimate individual desires and ambitions for the good of the community and state. The individual has few personal choices. Long-term suppression of personal feelings may contribute to the incidence of hypertension.

Ke-Shan's disease is unique to one of the northern provinces of China. It is a severe form of cardiomyopathy primarily affecting young females. Presenting symptoms are often congestive heart failure and cardiogenic shock. It is now treated with high doses of Vitamin C and selenium. This treatment is claimed to have reduced the mortality from sixty percent to five percent.<sup>3</sup>

Pulmonary tuberculosis has decreased to only fifteen percent of its incidence prior to 1949. Leprosy is rarely ever seen anymore. On the other hand, cigarette-related diseases such as squamous cell carcinoma of the lung, chronic bronchitis, and chronic obstructive pulmonary disease have increased markedly.

Parasitic diseases have been reduced to less than twenty-five percent of the pre-revolution incidence. The prevalence of venereal diseases had been markedly reduced by 1975.<sup>4</sup> Factors contributing to this reduction included outlawing prostitution, closing all brothels, and providing free treatment for all victims since 1950. The social pressures against illegitimate pregnancy and promiscuous sexual behavior also played a part in accomplishing this goal. Sex is non-commercialized in China and promiscuity is frowned upon. Both parents may be imprisoned for a pregnancy out of wedlock.

Immunization is compulsory. All newborns receive BCG vaccine. It is claimed that the infant mortality rate in Peking and Shanghai is currently less than it is in New York City.

Lung, liver, stomach and esophageal cancers are the

most common malignancies in China with breast, cervix and uterine cancers being the most common in females.

### Cardiac Conditions

Surgery usually is not performed for congenital heart defects in children under the age of three years. The defects are often not diagnosed and corrected until adolescence or young adulthood. The tour group observed closure of atrial and ventricular septal defects and total correction of a Tetralogy of Fallot. The surgeons were excellent, the equipment adequate.<sup>3,7</sup> All sutures were hand-threaded interrupted black silk.

Pure rheumatic mitral valve stenosis is managed by closed mitral commissurotomy. Other valvular lesions are managed surgically by valve replacement with a bioprosthesis. The type most commonly used is a stented pericardial bioprosthesis modeled after the Ionescu valve. Pericardial, porcine and mechanical valves are produced in China. Patients with bioprosthesis receive anticoagulants while in the hospital but are not sent home on them.

In order to provide care for patients with acute myocardial infarction, all hospital personnel, paramedics and many laymen are taught the techniques of cardiopulmonary resuscitation and closed cardiac massage. Medical management is often a mixture of contemporary Western pharmacologic agents combined with empirical use of intravenous extracts of Chinese herbs.<sup>5,6</sup> The specific effects of the latter have not been elucidated.

External counterpulsation is being investigated. Intraaortic balloon pumping is not being used. Coronary arteriography was introduced in China in 1973; however, most of the work has been limited to the animal laboratory. Widespread clinical application is not expected soon. Only one relatively young worker in Peking has received an aortocoronary bypass graft. Cardioplegia with potassium crystalloids and hypothermia is standard for all open heart operations. Heart-lung machines are copied from the modular Sarn's type. Oxygenators are usually of the Bentley or Travenol bag bubble variety. These supplies are manufactured in China. Few other disposables were observed. China is not a "throw-away" society. There is ample labor to prepare materials for re-use.

Intravenous solutions and blood transfusions were administered through rubber tubing. Blood was hung in an open beaker. Blood for further supply was kept in an open beaker on a side table. An operating room worker stirred the blood with a pestle before pouring it into the hanging beaker. The number of open heart operations done in China is very small compared to Japan or the West. There is a center with open heart capabilities in every province of China except Tibet. Some of them do less than fifty operations per year. Pacing for bradycardias and heart block is developing. Most pacing is still the external temporary type, but pacemakers are now being manufactured in China. A few permanent transvenous pacemakers have been implanted.

\*Moxibustion is the burning of herbs with application of the heat that is generated to certain points on the body surface. These points usually correspond to acupuncture points.



## Acupuncture Anesthesia

It was apparent that the scientifically oriented physicians, at the institutions which were visited, were not interested in widespread use of acupuncture anesthesia. At the Heart Institute in Peking, it is only used two or three times a month for cardiothoracic surgery. Reportedly, it is utilized much more commonly in provincial hospitals where trained anesthesia personnel are in scarce supply.

Acupuncture requires a psychologically prepared patient who has excellent rapport with the acupuncturist and the surgeon. Often, it takes as much as a week to prepare a patient for major surgery under acupuncture. The technique is thought to work through suggestion and the blockade of pain reflexes. It may cause the release of endorphins which activate narcotic receptors producing analgesia.

Acupuncture anesthesia requires about thirty minutes for induction. The surgeon must work meticulously and often slowly to minimize the pain. All thoracic and abdominal surgery patients feel pain and often require intravenous narcotic for its control. One patient in Shanghai had a closed mitral valvotomy under acupuncture anesthesia as a demonstration for the tour group. The patient received 50 mg. of meperidine intravenously before surgery. He was then given a muscle relaxant and intubated. Local infiltration of lidocaine was used on the skin. Electrical stimulators were applied to the edges of the wound. A supplemental dose of 50 mg. of meperidine was given intravenously. When the muscle relaxant began to wear off, the patient gave repeated grimaces. Post-operatively, the patient stated that he had unbearable pain but that he could not move or say anything because of the tube in his throat.

Acupuncture anesthesia has been so popularized by the Chinese traditional medical practitioners and the lay press that the cardiothoracic centers are under some pressure to use it. The surgeon told us that he would prefer that all cardiothoracic surgery patients have general anesthesia. He stated that about the only time acupuncture was used in his hospital was when the patient was such a poor anesthetic risk that induction of general anesthesia might result in death. The anesthetist was then asked how general anesthesia was induced. He stated that pre-operatively the patient with tight mitral stenosis would receive 50 mg. meperidine and 0.4 mg. of atropine or scopolamine. This would then be followed by a straight pentothal induction using 500 mg. American cardiac anesthesiologists would not use a preoperative vagal blocker nor an intraoperative myocardial depressant. Perhaps with some up-dating the Chinese anesthetists will not have the need for using acupuncture anesthesia in cardiothoracic surgery.

## Intensive Care

The post-operative intensive care units for cardiac patients were equipped with individual EKG monitors. The nurses are not trained to read rhythm strips or prevent and treat dysrhythmias. Monitoring of arterial and venous pressures is not standard.

## References

1. Revolutionary Health Committee of Hanan Province: a Barefoot Doctor's Manual. Revised by: Weisberg ME, Graham JR. Oceanside, N.Y., Cloudburst Press of America, Inc. 1977.
2. Dimond EG: Medical education in the People's Republic of China at the close of the cultural revolution. *JAMA* 239:653-655, 1978.
3. Bregman D: The current status of cardiovascular surgery in the People's Republic of China. *Cardiovascular Disease Bulletin of the Texas Heart Institute Houston*. Vol. 7, No. 1, March 1980.
4. Shulman AG: Absence of venereal disease in the People's Republic of China. *West J Med* 130:469-471, 1979.
5. Combined Tang-seng extract for coronary disease. *Chinese Med J* 6:330, 1973.
6. Acute myocardial infarction treated with traditional and western medicine. *Chinese Med J* 129-132, 1973.
7. DeBakey ME: A surgeon's diary of his visit to China. *Resident and Staff Physician* 3:73-84, 1976.

## Editorial Comment

Kenneth B. Desser, M.D.

Physicians less than fifty years old might be surprised to learn that there were extremely close ties between Chinese Medical Schools and American clinicians prior to World War II. Notable figures in medicine were frequently invited to serve as visiting professors of medicine at Peking. The late I. Snapper, M.D. was one such physician and he took delight in recounting his medical exploits. During grand rounds a Chinese actor with lead poisoning was presented. Plumbism was an occupational hazard among Chinese actors who applied lead-laden powder to their faces. The actor to be presented allegedly exhibited all the classical features of lead intoxication except porphyrinuria. Doctor Snapper took the patient's urine and personally precipitated, extracted and spectroscoped the specimen thereby demonstrating that the porphyrin was present. During his stay in China he noted that coronary disease, cholesterol stones and thrombosis were almost non-existent among the poor classes in North China who lived on a cereal-vegetable diet. Indeed their serum cholesterol levels were often in the range of 100 mg/dl. An increase in the ingestion of animal fat and saturated fats by the Chinese may provide a data base for the frequently debated relationship between diet and atherosclerosis.

Dr. McPhail's report highlights the fact that occidental visitors are frequently shown only what the Chinese want them to see. There appears to be some variance in the ability of visitors to examine certain aspects of Chinese life without guides. It should not surprise readers that Western reporters and laymen have greater access to interviewing the "barefoot doctors" when compared with the scrutinizing eyes and ears of skilled physicians. It is clear that acupuncture, like Vitamin C has a limited role in the practice of medicine. In fact the needles can occasionally be dispensed with altogether. I observed minor surgery performed on an "unanesthetized" patient who had been put into a "trance" during my travels in the Far East. Supported by the Biomedical Research Memorial Fund, Inc.



# We're looking for doctors who think they don't need a computer.



*Because they think a computer is too expensive.*

The Sequoia Medical System™ can pay for itself:

- Increased collections
- Decreased receivables
- Improved staff efficiency

*Because they think they already have firm control of their billing.*

The Sequoia Medical System automatically processes billing paperwork:

- Patient statements
- Third party claims
- Collection letters

*Because they think they have easy access to vital practice data.*

The Sequoia Medical System provides information immediately:

- Aged receivable reports
- Procedure and diagnosis analysis

- Daily production and revenue analysis
- On-line access to 4½ million medical journal articles in the National Library of Medicine
- And many other forms of essential data

*Because they think a computer is administratively disruptive.*

The Sequoia Medical System is designed to blend smoothly into solo and small group practices:

- Easy to use
- Pre-programmed, turn-key system

- Includes training, installation, local service and support.

*Because they haven't seen a Sequoia Medical System.*

Sequoia can provide more time for health care in your practice. While it's taking care of business... you're taking care of patients.

Start looking into the benefits of a computer today by calling Sequoia Group. Call toll free (800) 227-2360; in California (800) 772-2655... or write for our brochure.

## SEQUOIA GROUP™

I N C O R P O R A T E D

1100 Larkspur Landing Circle, Larkspur, CA 94939

Atlanta, Birmingham, Boston, Buffalo, Charlotte, Chicago, Cleveland, Columbus, Dallas, Denver, Detroit, Hartford, Houston, Indianapolis, Irvine, Kansas City, Los Angeles, Memphis, Miami, Minneapolis, Nashville, New Orleans, New York City, Norfolk, Oklahoma City, Philadelphia, Phoenix, Pittsburgh, Portland, Salt Lake City, San Diego, San Francisco, Seattle, St. Louis, Tampa, Washington, DC



**works well in your office . . .**

## **NEOSPORIN® Ointment** (polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**works just as well in their homes.**

- It's effective therapy for abrasions, lacerations, open wounds, primary pyodermas, secondarily infected dermatoses.
- It provides broad-spectrum overlapping antibacterial effectiveness against common susceptible pathogens, including staph and strep.



- It helps prevent topical infections, and treats those that have already started.
- It contains three antibiotics that are rarely used systemically.
- It is convenient to recommend without a prescription.

**NEOSPORIN® Ointment—for the office, for the home.**  
(polymyxin B-bacitracin-neomycin)

**Effective • Economical • Convenient • Recommendable**

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**WARNING:** Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neomycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as a failure to heal. During long-term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

**PRECAUTIONS:** As with other antibacterial preparations, prolonged use may result in overgrowth of non-susceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

**ADVERSE REACTIONS:** Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section). Complete literature available on request from Professional Services Dept. PML.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709





*Seminars in  
Gastroenterology  
and Liver Disease*

## Flexible Sigmoidoscopy

George E. Burdick, M.D.

Editors:

George Burdick, M.D.

Stephen Glouberman, M.D.

Steven R. Kanner, M.D.

Technological advances in medicine occasionally seem to proceed at a faster rate than our ability to evaluate their usefulness. Typical of these newer technologies is the recent introduction of the flexible sigmoidoscope. This instrument appeared on the medical scene before it was clear to most clinicians, even those with a primary interest in endoscopy, that the instrument was necessary. Some considered the possibility that the technique might have a negative value in the diagnosis and treatment of diseases of the colon and rectum.

Typical of the flexible sigmoidoscopes available is the Olympus Flexible Sigmoidoscope which is approximately 60 cm in length. Although the instrument is considerably easier to manipulate than a colonoscope, the length of the instrument does pose some problems in that it requires considerable training in its use. More than likely, a shorter instrument of 30-35 cm will be developed for use by the general clinician.

One of the reasons used to justify the longer instruments is the demonstration over the past few years of an apparent proximal migration of large bowel cancers. In previous years, it was felt that as many as 75% of large bowel cancers were within the reach of the rigid sigmoidoscope. Recent studies have demonstrated a larger percentage of cancers occurring in the more proximal bowel.<sup>1,2</sup>

Several clinical studies have compared the flexible and rigid sigmoidoscope in large numbers of patients.<sup>3-7</sup> These studies have all shown clearly the superiority of the flexible sigmoidoscopy in the diagnosis of important diseases of the rectum and sigmoid colon. All of the prospective evaluations thus far have demonstrated a higher yield in the diagnosis of both colon cancer and their premalignant counterparts, villous adenoma and adenomatous polyp. One study<sup>5</sup> examined 1012 cases and reported a 2.4 increase in the number of polypoid lesions and a threefold increase in the cancers detected by the flexible as opposed to the rigid instrument. These figures seem characteristic of all the evaluations comparing the two techniques. The average distance reached by the flexible sigmoidoscope was approximately 20 cm. The average distance examined with the flexible sigmoidoscope was 50 cm. Additionally, almost all observers have been favorably impressed with the ability of the flexible sigmoidoscope to better evaluate the mucosa of the rectosigmoid junction and the distal sigmoid colon. This region is frequently difficult to see thoroughly even when the rigid sigmoidoscope can be advanced the full distance of 25 cm.

Although the superiority of the flexible sigmoidoscope over the rigid instrument appears to have been demonstrated, this leads to a number of other questions, which are largely unanswered. Among these questions include the following:

1) Who should and who should not perform the examination, since the present instrument requires considerable training in its use?

2) How often should the procedure be done in cancer screening and which patients need the study?

3) What is the relative value of flexible sigmoidoscopy (plus or minus air-contrast barium enema) compared to colonoscopy in specific patient groups?

4) What is the cost effectiveness of flexible sigmoidoscopy as a routine office procedure (the cost is two to three times that of the rigid sigmoidoscopic examination)?

My personal opinion is that flexible sigmoidoscopy will eventually replace the rigid sigmoidoscopy as the standard examination of the rectum and sigmoid. One of the most significant reasons for performing examination of the rectum and sigmoid is the early diagnosis and treatment of colon neoplasms. Cancer of the colon continues to be an important health problem with an annual incidence of approximately 100,000 cases per year in the United States. It would appear that we are

on the threshold of having the ability to largely eliminate colon neoplasm as a cause of death. Yearly hemoccult testing would seem reasonable in all patients in the cancer age group. Flexible sigmoidoscopy could be performed every three to five years and barium enema every five to ten years as supplemental evaluations. Colonoscopy would continue to be a necessity in patients with positive hemoccult studies or in patients with a diagnosis of adenomatous polyps or neoplasm.

Although our ability to make an early diagnosis of colon cancer, and perhaps preventing cancer with early removal of premalignant lesions, has been available for some time, the annual incidence of cancer of the colon continues to be high. Much of this can be attributed to lack of patient and physician acceptance of screening procedures. The sigmoidoscopic examination, rightly or wrongly, is one of the most feared procedures from the patient's standpoint. Difficulty in negotiating the rectosigmoid junction, as well as the position of the examination, seem to be important features for patient discomfort with rigid sigmoidoscopy. Although, on the average, the flexible sigmoidoscope examines two and a half times as much colon as the rigid instrument, it has been my impression that the examination is much better tolerated by most patients. This is particularly true of the elderly patient where the left lateral decubitus position used for the flexible examination is more easily tolerated than the typical patient position on the sigmoidoscopic table. In experienced hands, the examination can be easily accomplished in an average of ten minutes. Preparation can be accomplished with one or two enemas on the morning of the examination. Sedation for flexible sigmoidoscopy is not required. These factors are important qualities for an out-patient office procedure.

Although the role of flexible sigmoidoscopy in clinical medicine is still in the process of definition, it appears to be an important advance. It is considerably less expensive than full colonoscopy and it has replaced colonoscopy in a number of situations. The flexible examination is more expensive than rigid sigmoidoscopy, but is so superior in quality and results, that the additional cost seems worthwhile.

#### References

1. Cady B, Persson AU, Monson DO, et al: Changing patterns of colorectal carcinoma. *Cancer* 33:422-4, 1974.
2. Synder DN, Heston JF, Meigs JW, et al: Changes in site distribution of colorectal carcinoma in Connecticut. *Am J Dig Dis* 22:791-7, 1977.
3. Winnan G, Berci G, Panish J, et al: Superiority of the flexible to the rigid sigmoidoscope in routine proctosigmoidoscopy. *NEJM* 302:1011-1012, 1980.
4. Bohlman TW, Katon RM, Lipshultz GR, et al: Fiberoptic pansigmoidoscopy: An evaluation and comparison with rigid sigmoidoscopy. *Gastroenterology* 72:644-9, 1977.
5. Marks G, Boggs W, Castro AF, et al: Sigmoidoscopic examinations with rigid and flexible fiberoptic sigmoidoscopes in surgeon's office. *Dis Colon Rectum* 22:162-8, 1979.
6. Winawer SJ, Leidner SD, Boyle C et al: Comparison of flexible sigmoidoscopy with other diagnostic techniques in the diagnosis of rectocolon neoplasia. *Dig Dis and Science*. 24:277-281, 1979.
7. Crespi M, Casale V, Grass A: Flexible sigmoidoscopy: A potential advance in cancer control. *Gastroent Endo* 24:291-2, 1978.



## Neurology

# Mutism, Akinesia, and Fever A Review

Russell D. Martin, M.D.

#### Editors:

James Frey, M.D.

Barry Hendin, M.D.

Lawrence Stern, M.D.

#### Abstract

The diagnostic considerations in a patient presenting with mutism, akinesia, and fever are reviewed. A commonly occurring disorder, the neuroleptic malignant syndrome, is illustrated with a case. The role of neuroleptics in hyperthermic states, and in akinetic mutism without fever is discussed. A discussion of akinetic mutism secondary to CNS lesions, and of fulminating catatonia complete the review.

Key words: Neuroleptics; Tranquilizing Agents; Major; Catatonia; Fever; Akinetic mutism.

From: Veterans Administration Medical Center, South Sixth Street, Tucson, Arizona 85723, where Dr. Martin is Associate Chief of Staff for Education, and University of Arizona Health Sciences Center, Department of Psychiatry where Dr. Martin is Assistant Professor of Medicine. Reprints will not be available from the author.



## Introduction

The patient with an acute onset of mutism and akinesia is most apt to elicit the diagnosis of catatonic schizophrenia. This is especially true if the patient is known to suffer from psychosis, particularly schizophrenia. When fever is also present the situation becomes less clear. This discussion will describe the neuroleptic malignant syndrome, a commonly occurring disorder of mutism, akinesia and fever, and some other conditions to be considered in patients who present with these manifestations.

## Case Illustration

The patient is a 30 year old white man with a ten year history of schizophrenia. He had been maintained on chlorpromazine, 50 mgs. per day and with that regimen was able to live with his parents. On the day of admission he apparently became frightened and began running. How far he ran is not certain but sufficiently to cause some blisters on both feet. He was found by his father who had followed him. At that time he was sprawled on the ground where he had apparently fallen. He was rigid and mute. He was carried to the nearest hospital where the impression was catatonic schizophrenia. He was able to move but rigid. He would walk and would eat if helped. His medication was increased to 150 mgs. chlorpromazine q.i.d. with no noted improvement.

By the fourth hospital day he was mute, refusing to answer questions or respond to commands. He followed anyone in the room with his eyes and exhibited "waxy flexibility". He was found to have urinary retention and his temperature was 39°C. His pulse varied from 100 to 110 and B/P ranged around 140/90. The next morning his pulse rate was 130. CSF analysis and EEG were normal at that time. By evening, his temperature was 40°C and he was transferred for medical evaluation of fever of unknown origin. The medical evaluation revealed no evidence of infection or other causes of fever and a brain scan was also normal. Abnormal findings were limited to mild elevations of the white blood count, SGPT, SGOT, LDH, Amylase and ESR and a marked elevation of serum CPK to 28,000 IU.

It was noted that his rigidity increased during periods of higher temperature and lessened during periods of lower temperature. He was changed from chlorpromazine to haloperidol on day 10 and his fever gradually remitted thereafter and remained normal after the day 27. He was transferred back to the psychiatry service and after two weeks the parents stated he was at his usual level of adjustment and requested his discharge. At that time the patient had no gross evidence of any organic impairment. His adjustment on the psychiatric unit was that of a quiet, rather withdrawn, but otherwise appropriate man.

## Discussion

### Neuroleptic Malignant Syndrome:

This patient is considered to have suffered an episode

of the neuroleptic malignant syndrome. This syndrome, extensively reviewed by Caroff<sup>1</sup> is characterized by muscle hypertonicity with "lead pipe" or plastic rigidity and akinesia which develops with or shortly before fever of up to 40°C. The syndrome occurs hours to months after exposure to neuroleptic agents. Consciousness may vary from alert but dazed mutism to coma. Autonomic reactions such as tachycardia, labile B/P, diaphoresis, dyspnea, or incontinence may occur. Sialorrhea, dyskinesias, and dysphagias have been reported. The syndrome lasts five to ten days after cessation of oral neuroleptics, longer if depot injections were given. Laboratory studies may reveal an elevated CPK, elevated WBCs, and in some cases EEG abnormalities of a diffuse nature. This syndrome should be considered in the individual who stops moving and talking and develops fever after exposure to psychotropics, especially if they are also physically exhausted or dehydrated.<sup>2</sup>

There is no specific treatment other than discontinuing the offending agent and providing supportive medical and nursing care with careful attention to cardiovascular, respiratory, and renal functions. The mortality rate may be as high as 20%, with those patients reacting to depot fluphenazine being at the greatest risk. The patient reported here was unusual in that his fever remitted in spite of continued neuroleptic administration, although the course changed at the same time as the medication was changed from chlorpromazine to haloperidol.

Other conditions which require consideration in patients presenting with "catatonia" and fever are discussed in the following sections.

### Hyperthermia and Neuroleptics

The potential for heat stroke in patients using neuroleptic medications must be of consideration in any patient presenting with hyperthermia.<sup>3</sup> The neuroleptic agents alter hypothalamic responses allowing patients to be above or below normal ranges of core temperature in response to ambient conditions. In addition, they are frequently given in combination with powerful anticholinergic agents such as tricyclic antidepressants and anti-parkinsonian agents which inhibit sweating. The combination of impaired sweating, central inhibition of temperature control, hot weather, and vigorous activity places these patients at high risk for heat stroke. They may present in coma. Rigidity, if present, is more likely to be an extrapyramidal effect of the neuroleptic and, therefore, of a "cogwheeling" quality.

Since death may well be the outcome, emergency treatment directed toward core cooling is indicated. The patient must be monitored to prevent excessive cooling, a risk in these relatively poikilothermic individuals. Patients on these medications should be forewarned regarding their hazards.

### Akinetic Mutism Secondary to CNS Lesions:

This term is used to characterize that population of patients who, as a result of a CNS lesion, present in a state superficially resembling catatonic schizophrenia.<sup>4</sup> Schizophrenic patients, notwithstanding their mutism, are often in very alert states of consciousness and often negativistic and resistive to movement or commands. Patients with CNS lesions are usually more passive and not as resistant and may be somnolent to some degree. A broad range of brain insults may produce this picture. If fever is a prominent sign then encephalitis must be ruled out, for it is a common culprit in febrile akinetic mute states. The most common type is probably herpes simplex encephalitis. It is, unfortunately, difficult to diagnose, specific treatment is not very satisfactory, and the outcome is frequently catastrophic. This condition is well reviewed by Raskin and Frank.<sup>5</sup>

### Akinetic Mutism Secondary to Phenothiazines

This is a syndrome without fever but with the development of progressive mutism and inertia culminating in a patient who makes no sound and lies inert except for eye movements which steadily follow the observer. Such patients are not negativistic. They are incontinent, they swallow readily but must be fed for they will not eat. The course is one of gradual development 12-18 months after starting phenothiazines and management consists of discontinuing the medications.<sup>6</sup>

### Malignant Hyperpyrexia

This condition, well known to anesthesiologists, is characterized by sudden onset of severe hyperthermia, widespread muscular rigidity and elevated CPK which occurs in susceptible individuals given general anesthetics, particularly halothane, and/or muscle relaxants, such as succinylcholine. The onset is precipitous, occurring within minutes of exposure to the muscle relaxant or anesthetic agent.

One case has been reported which was attributed to trimeprazine (a phenothiazine derivative).<sup>7</sup> In this case a febrile response ensued within 15 minutes after an oral dose of the drug. This case may represent, however, a neuroleptic malignant syndrome with a very rapid onset. It is illustrative of the idea that there may be a pathophysiological relationship between malignant hyperthermia and the neuroleptic malignant syndrome which remains to be elucidated.

### Fulminating Catatonia

There remain those patients in which all other syndromes and causes for fever, mutism, and akinesia are eliminated. These have been classified variously as fulminating catatonia, acute lethal catatonia, fatal catatonia, and other similar designations. Whether these represent a specific entity or merely represent a heterogeneous group of patients who elude understanding is unresolved. There are those who believe that ECT may be life-saving in these cases.<sup>8</sup>

### Summary

A group of conditions which may present with fever, akinesia, and mutism are described. The neuroleptic malignant syndrome was emphasized inasmuch as it is an increasingly recognized complication of neuroleptic treatment and easily confused with other conditions presenting a similar clinical picture.

### References

1. Caroff SN: The neuroleptic malignant syndrome. *J Clin Psychiatry* 41:79-83, 1980.
2. Itoh H, et al: Malignant neuroleptic syndrome. *Folia Psychiatrica et Neurol JPN*. 31:565-576, 1977.
3. Reimer DR, Mohan J, Nagasumi S: Heat dyscontrol syndrome in patients receiving antipsychotic antidepressant, and antiparkinson drug therapy. *J Florida MA* 61:573-574, 1974.
4. Sours John A: Akinetic mutism simulating catatonic schizophrenia. *Am J Psychiatry* 119:491-495, 1962.
5. Raskin DE, Frank SW: Herpes encephalitis with catatonic stupor. *Arch Gen Psychiatry* 31:544-546, 1974.
6. Behrman S: Mutism induced by phenothiazines. *Br J Psychiatry* 121:599-604, 1972.
7. Moyes DG: Malignant hyperpyrexia caused by trimeprazine. *Br J Anaesth* 45:1163-1164, 1973.
8. Powers P: Douglass TS, Waziri R: Hyperpyrexia in catatonic states. *Dis Nerv Syst* 37:359-361, 1976.





# Extravasation of Vessicant Antineoplastics: Clinical and Experimental Findings

Robert T. Dorr, M.S., R.Ph.

Editors:

David S. Alberts, M.D.

Ellen M. Chase, B.S.

### Abstract

Serious local tissue damage is often the result of inadvertent extravasation of specific (vessicant) anticancer drugs including anthracyclines such as adriamycin (ADM), vinca alkaloids (vincristine, vinblastine), and others such as mithramycin, mitomycin, DTIC, and m-AMSA. ADM lesions tend to progress slowly to involve deep tissues. Spontaneous healing is slow and incomplete. Early wide debridement and flap coverage are often necessary for large lesions. Clinically, treatment is empirical, typically involving a local glucocorticosteroid or, more controversially, sodium bicarbonate. Animal extravasation models have demonstrated the inefficacy of a number of purported local ADM antidotes including hyaluronidase, heparin, cimetidine, diphenhydramine,  $\alpha$ -tocopherol, N-acetylcysteine, and lidocaine. Significant benefits have been noted with the beta adrenergics isoproterenol and propranolol suggesting modulation of ADM skin toxicity by a putative epidermal beta receptor.

Vinca extravasations in animals are best treated with hyaluronidase. Here, local corticosteroids increase toxicity. A paucity of data exists in treating most other vessicant extravasations.

From: Arizona Health Sciences Center, Cancer Center Division and College of Pharmacy, University of Arizona College of Medicine, Tucson, Arizona 85724. This work was supported in part by grants from the National Cancer Institute: CA 23074 and CA 17094

### Introduction

Many antineoplastic drugs currently in clinical use produce severe local tissue reactions if inadvertently extravasated (delivered outside the vein) during administration. In many instances, serious inadvertent extravasation occurs despite scrupulous venipuncture technique<sup>1</sup> and constant careful monitoring of an infusion.<sup>2</sup>

Table 1 outlines some of the antineoplastic drugs which are clinically associated with severe local tissue toxicity if extravasated (vessicants).

Chemical phlebitis may also be produced by continuous infusions of known vessicants like vinblastine<sup>3</sup> or doxorubicin hydrochloride (adriamycin [ADM])<sup>4</sup> and this obviously places a patient at a higher risk of developing a severe local reaction at the injection site. In contrast to extravasation injury, phlebitis is typically transient and preventable by procedures such as long-term indwelling central catheterization.<sup>5</sup>

Careful technique is of utmost importance in preventing serious extravasation lesions. Unfortunately, many cancer patients receiving chemotherapy develop severely compromised and friable peripheral veins, further complicating continued intravenous drug delivery. Other physiologic factors may also predispose patients to higher risks of extravasation. Blocked venous or lymphatic drainage can be present, such as with the superior vena cava syndrome or in post-mastectomy patients who have had extensive axillary lymph node dissections. The specific anatomic site of the venipuncture may also affect the extravasation risk. Dorsal hand veins which are most accessible are also more commonly associated with serious extravasation injuries.<sup>1,6</sup> In some instances, the signs and symptoms of a severe reaction may initially be inapparent<sup>2</sup> or may occur somewhat distal (and, in one instance, retrograde) to the venipuncture site.<sup>7</sup>

The seriousness of a drug extravasation relates to the inherent vessicant potential of the drug and the rapid institution of effective local countermeasures. Little scientific data exist concerning the treatment of anticancer drug extravasation. There are, however, a few case reports which describe therapeutic interventions for specific drug extravasations.

### Mechlorethamine (HN<sub>2</sub> or Nitrogen Mustard)

Chait and Dinner<sup>6</sup> have described four cases of serious mechlorethamine extravasations occurring on the dorsum of the hand. In three cases, healing was quite delayed (4-5 months). Early wide excision with flap coverage in one case produced very poor results. Thrombophlebitis is also routinely quite severe with this drug.<sup>8</sup> Sodium thiosulfate (1/6 Molar solution)\* is recommended as a local antidote by the manufacturer. There is, however, no data, clinical or experimental, to substantiate its efficacy although this antidote is systemically effective at reducing mechlorethamine toxicities.<sup>9</sup>

\*A 1/6 molar solution may be made by aseptically combining 4 ml of 10% sodium thiosulfate USP with 6 ml sterile water for injection.

**Table 1**  
**Antineoplastic Drugs Associated with Vessicant Properties if Extravasated\***

| Drug Class                      | Specific Agents                                      | Purported Antidotes (Source)                                         | Positive Effects in: Experimental Animals | Clinical Case Reports                     | Negative Effects Described in Experimental Animals or Clinical Case Reports |
|---------------------------------|------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------|
| Alkylating Agents               | Mechlorethamine (Nitrogen Mustard, HN <sub>2</sub> ) | 1/6 M sodium thiosulfate (Manufacturer)                              | None                                      | None                                      | Yes (Systemic) <sup>12</sup>                                                |
| Anthracycline Antibiotics       | Doxorubicin (Adriamycin®)                            | Hydrocortisone, Dexamethasone, Sodium Bicarbonate                    | Yes <sup>30</sup><br>Yes <sup>30</sup>    | Yes <sup>1, 15</sup><br>Yes <sup>26</sup> | Yes (Very high doses) <sup>30</sup><br>None                                 |
|                                 | Daunomycin (Cerubidine®)                             | Sodium Bicarbonate<br>Dexamethasone-sodium bicarbonate <sup>32</sup> | Yes <sup>31</sup><br>None                 | None<br>None                              | Yes <sup>32, 33</sup><br>None                                               |
|                                 | Rubidazole (I)*                                      | None                                                                 | --                                        | --                                        | --                                                                          |
|                                 | Detorubicin (I)                                      | None                                                                 | --                                        | --                                        | --                                                                          |
| Other Intercalating Antibiotics | Dactinomycin (Cosmegen®)                             | Sodium thiosulfate or ascorbic acid <sup>32</sup>                    | None                                      | None                                      | None                                                                        |
|                                 | Acridinyl Anisidide (m-AMSA) (I)                     | None                                                                 | --                                        | --                                        | --                                                                          |
| Antitumor Antibiotics           | Mithramycin (Mithracin®)                             | EDTA (150 mg/ml)                                                     | None                                      | None                                      | None                                                                        |
|                                 | Mitomycin C (Mutamycin®)                             | 10% Sodium thiosulfate or ascorbic acid <sup>32</sup>                | None                                      | None                                      | None                                                                        |
|                                 | Neocarzinostatin (I)                                 | None                                                                 | --                                        | --                                        | --                                                                          |
|                                 | Streptonigrin (I)                                    | None                                                                 | --                                        | --                                        | --                                                                          |
| Antitumor Analogues             | Methyl-GAG (I) (Methyl-glyoxal-bis-guanyl hydrazone) | None                                                                 | --                                        | --                                        | --                                                                          |
| Nitrosoureas                    | Carmustine (BiCNU®)<br>Streptozotocin (Zanosar®)     | Sodium Bicarbonate <sup>32</sup><br>None                             | None                                      | None                                      | None                                                                        |
| Plant Alkaloids                 | Vinblastine (Velban®)                                | Hyaluronidase plus heat or sodium bicarbonate (Manufacturer)         | Yes (**)                                  | Yes <sup>2</sup>                          | Yes (**)                                                                    |
|                                 | Vincristine (Oncovin®)                               |                                                                      |                                           |                                           |                                                                             |
|                                 | Vindesine (I)<br>Maytansine (I)                      | Hydrocortisone<br>None                                               | None<br>--                                | None<br>--                                | Yes (**)<br>--                                                              |
| Miscellaneous Antineoplastics   | Dacarbazine (DTIC-Dome®)                             | None                                                                 | --                                        | --                                        | --                                                                          |
|                                 | Estramustine Phosphate (Estracyte®)                  | None                                                                 | --                                        | --                                        | --                                                                          |

\*I - Indicates investigational drug now in clinical trials

References are shown in superscript

\*\* - Unpublished ongoing research

### Anthracycline Antibiotics:

Acute local adriamycin (ADM) reactions can present as two clinical syndromes: 1) a local hypersensitivity or "flare" reaction with erythema and, occasionally, severe pruritis, pain, and/or tenderness,<sup>10,11</sup> and 2) severe, protracted skin ulceration upon inadvertent perivenous infiltration during administration.<sup>1,12,13</sup> The incidence of this latter, more serious toxicity varies from 4%-6%<sup>14,15</sup> to 0.45% in approximately 2,000 patients reviewed by Laughlin et al.<sup>16</sup>

Clinically, ADM infiltration lesions follow an insidious course with initial pain, erythema, and

blistering. Four to five days after infiltration, lesions progress to clearly demarcated wounds, eventually darkening to form a central eschar.<sup>1,12</sup> In addition, lesions characteristically deepen and expand laterally over a period of several months. They may become infected, and separation of necrotic tissue (sloughing) can occur. Large ulcers do not regranulate well and healing is often prolonged. The typical indolent course has been compared to radiation-induced skin lesions.

The clinical management of an ADM infiltration has been empirically based. For large evolving lesions, early and wide surgical debridement (beyond the margin of



the ulcer), followed by skin grafting or flap coverage has been recommended.<sup>16,17</sup> Several local antidotal maneuvers have been recommended, including 1) the infiltration of corticosteroids,<sup>1,12</sup> 2) corticosteroids plus sodium bicarbonate,<sup>18</sup> 3) local dilution with copious saline infiltration, and 4) combined chemical-enzymatic debridement with streptokinase-streptodornase followed by sodium hypochlorite and dextranomer.<sup>19</sup> These reports, however, involve only clinical observations and, therefore, lack crucial control and quantitation of extravasation and lesion size. Thus, several investigators have sought to evaluate these potential pharmacologic antidotes in experimental animal models.

Cohen,<sup>20</sup> using a subcutaneously administered adriamycin toxicity model was not able to show any antidotal benefit for a number of pharmacologic antidotes including hyaluronidase, lidocaine, bupivacaine, phentolamine, dexamethasone, and hydrocortisone, which are thought to be effective clinically. Siegel et al.<sup>21</sup> were also unable to demonstrate any significant anti-inflammatory benefit against ADM-induced inflammation in the mouse paw for either histamine or serotonin antagonists or for the prostaglandin inhibitors aspirin and ibuprofen.

Recent studies performed at the University of Arizona Cancer Center have been designed to increase information concerning the use of antidotes to ameliorate adriamycin-induced skin toxicity. The model used involves intradermal (I.D.) injection of 0.05 mg or 0.5 mg of ADM into a hair-free dorsal skin site of the BALB/c mouse. This is immediately followed by I.D. injection of various pharmacologic antidotes. This model shows dose-dependent skin lesions as determined by daily measurement of the lesion induration, erythema, and ulceration.<sup>22,23</sup> Using this methodology, we have observed only mild efficacy for low-dose glucocorticosteroids (2.5 mg hydrocortisone) in ameliorating the toxicity of adriamycin (0.05 mg) extravasation.<sup>24</sup> Larger doses of local (I.D.) glucocorticosteroids were directly toxic to skin. For a higher I.D. ADM dose (0.5 mg), neither glucocorticosteroids nor 0.05 mEq I.D. sodium bicarbonate (thought to denature active ADM) reduced local toxicity. In contrast, I.D. sodium bicarbonate heightened ADM-induced skin damage in the mouse. These results differ from those of a recent I.D. ADM study in rats wherein sodium bicarbonate appeared (statistically) beneficial at a single 3-week post-ADM time point.<sup>31</sup> Treatment of ADM extravasations with sodium bicarbonate thus remains controversial. Apparently, several clinical cases of extravasation have been successfully managed with low doses (4 ml) of I.D. 3.4% sodium bicarbonate,<sup>25</sup> yet subcutaneous sodium bicarbonate has caused necrosis in man if extravasated in substantial amounts.<sup>26,27</sup>

Because of the limited role of the glucocorticosteroids and the ineffectiveness of sodium bicarbonate in our

hands, we tested a diverse number of other potential antidotes in the mouse.<sup>28</sup> In the most recent experiments we have seen a clear advantage for local cooling (ice packs) over heat in reducing ADM ulceration in the mouse (unpublished findings). The results of continuing pharmacologic antidote trials have shown that, of the broad series of compounds tested, the most marked experimental antidotal activity is obtained with a beta adrenergic blocking drug, propranolol, and a beta adrenergic agonist, isoproterenol. Each was effective when given immediately after and proximal to the I.D. ADM. The testing of the beta adrenergics followed the observations of Bristow et al.<sup>29</sup> that antihistamines plus propranolol appeared to decrease experimental ADM-induced myocardial injury in rabbits and dogs.

Neither H<sub>1</sub> nor H<sub>2</sub> antihistamines were effective in our animal model along with high-dose local and systemic corticosteroids, lidocaine, hyaluronidase, and heparin.<sup>28</sup>

Likewise, the inactivity of N-acetylcysteine (a free-radical scavenger) and the fat-soluble Vitamin E (alpha tocopherol acetate) suggests that ADM (quinone)-generated oxidative free radicals (which have been implicated experimentally in mediating ADM cardiotoxicity)<sup>30</sup> are not primarily responsible for the production of ADM skin lesions. In subsequent experiments, we have demonstrated the ability to increase or decrease I.D. ADM-induced necrosis by altering the sequence of administration of opposing beta adrenergics.<sup>31</sup>

**Daunomycin** (Cerubidine®), an anthracycline closely related to adriamycin, may also cause severe local tissue destruction if extravasated. In one instance, necrosis of the hand occurred following the inadvertent retrograde distribution of daunomycin administered through a surgically-created arterio-venous fistula.<sup>7</sup>

#### **Intercalating Antibiotics**

The intercalating antibiotics *dactinomycin* and *m-AMSA* also have local vesicant properties. Both drugs must be administered very cautiously, and *m-AMSA* additionally requires substantial dilution to avoid significant thrombophlebitis.<sup>32</sup> For *m-AMSA*, no antidote to extravasation necrosis has been reported, and for *dactinomycin* only highly empirical recommendations are available: sodium thiosulfate and/or ascorbic acid.<sup>33</sup>

#### **Antitumor Antibiotics**

Many of the antitumor antibiotics can cause severe local tissue destruction if extravasated. *Mithramycin*, used more often for the management of hypercalcemia than for its antitumor effects, typically produces phlebitis, and, if extravasated, severe ulceration. No specific therapy other than local heat (which has proven deleterious when used with almost all other extravasated drugs) is suggested. For *mitomycin C*, 23 instances (5% incidence) of drug-induced extravasation necrosis have also been described.<sup>34,35</sup> Again, no specific antidotal measures have been suggested, although the local lesions were apparently quite severe and there was



deep tissue involvement and delayed healing similar to that observed with anthracycline-induced extravasation injuries. One group offers the same empirical approach to mitomycin C (sodium thiosulfate and/or ascorbic acid) as to actinomycin D.<sup>33</sup> Substantiation of efficacy, however, either clinical or experimental, is not yet available.

### The Vinca Alkaloids

These antimitotic drugs are highly implicated in causing severe local tissue ulceration upon extravasation or upon inadvertent eye contact with aspirated drugs (three cases of vinblastine (VLB)-induced epithelial keratopathy in the literature).<sup>36-38</sup> In attempting to duplicate the positive preliminary clinical results of continuous 5-day, peripheral VLB infusion, we observed four patients who developed painful lesions at the injection site with prominent induration and erythema. Empirical treatment involved limb elevation and ice packs following 100 mg hydrocortisone SQ infiltration to the site. While the outcome was generally good (minimal ulceration in only one case), it is quite possible that our use of a dilute drug solution (1.5-2.6 mg/liter of 5% dextrose) and early recognition each contributed to the overall good outcome.

Vincristine (Oncovin®) is also widely recognized as a vesicant if extravasated.<sup>8</sup> For extravasations of both vinca alkaloids, the manufacturer recommends the local application of heat and injection of hyaluronidase, ostensibly to promote rapid uptake of the drug. In contrast, some clinicians have recommended saline dilution or glucocorticosteroids and ice packs to treat vincristine extravasations.<sup>39-41</sup> Still others suggest augmenting the hyaluronidase regimen with sodium bicarbonate to "chemically precipitate" the antimitotic agent in the tissues.<sup>33</sup> There is currently little scientific documentation of efficacy for these recommendations.

Vindesine, a related investigational antineoplastic alkaloid now in clinical trials, has a documented potential to cause severe local tissue reactions if extravasated.<sup>42</sup> In a Phase I-II study with this agent at the University of Arizona we documented five serious vindesine infiltrations, each with severe ulcerative sequelae.<sup>2</sup> Thereafter, the direct I.V. push technique was altered to include pre- and post-vindesine infusions of 50 ml of D<sub>5</sub>W with the vindesine (1 mg/ml) given as a brief injection into the flowing stream of a freshly-established I.V. infusion. For patients who had previously reacted to an infiltration of vindesine, a small I.V. dose (50-100 mg) of hydrocortisone (Solu-Cortef®) was also given prior to the vindesine. Preliminary vinca extravasation studies in our BALB/c mouse model, however, have documented a consistent antidotal effect only for local hyaluronidase. This is the antidote suggested by the manufacturer. On the other hand, glucocorticosteroids, which were purportedly effective in some clinical cases, appeared to be deleterious as local antidotes to I.D. vinca-induced ulceration. Thus, until more evidence is available, we

would recommend subcutaneous hyaluronidase (approximately 150 units/3 ml normal saline) as a local antidote for vinca extravasation.

### Conclusion

This review has documented that for a number of antineoplastic drugs now in clinical use, severe local ulceration may be expected upon inadvertent extravasation. Despite extensive clinical trials and a documented ulcerative potential, little specific information is available to identify effective local extravasation antidotes. The best studied vesicant is adriamycin. Our recommendation for treatment involves primarily low-dose glucocorticosteroids (50-100 mg hydrocortisone with ice packing) and early surgical consultation for large evolving ulcers. The role of sodium bicarbonate remains controversial. The beta adrenergics appear to offer a new experimental direction for ameliorating anthracycline local toxicity.

Hyaluronidase appears to be beneficial for vinca alkaloid extravasations, wherein glucocorticosteroids increased toxicity in an experimental setting. Obviously more laboratory experience is needed in this area, especially since no single substance is likely to be useful as a universal antidote. The diametric contrast in the effects of glucocorticosteroids in anthracycline and vinca alkaloid experimental extravasations is a good example of this point.

### References

1. Rudolph R, Stein RS, Patillo RA: Skin ulcers due to adriamycin. *Cancer* 38:1087-1094, 1976.
2. Dorr RT, Jones SE: Inapparent infiltrations associated with vindesine administration. *Med Pediatr Oncol* 6:285-288, 1979.
3. Yap H, Blumenschein GR, Hortobagyi GN, et al: Continuous 5-day infusion vinblastine (VLB) in the treatment of refractory advanced breast cancer. *Proc Am Assoc Cancer Res and ASCO* 20:334, 1979.
4. Legha SS, Benjamin RS, Yap H, Freireich EJ: Augmentation of adriamycin's therapeutic index by prolonged continuous I.V. infusion for advanced breast cancer. *Proc Am Assoc Cancer Res and ASCO* 20:261, 1979.
5. Bottino J, McCredie KB, Groschel DHM, Lawson M: Longterm intravenous therapy with peripherally inserted silicone elastomer central venous catheters in patients with malignant diseases. *Cancer* 43:1937-1943, 1979.
6. Chait LA, Dinner MI: Ulceration caused by cytotoxic drugs. *South Afr Med J* 49:1935-1936, 1975.
7. Dragon LH, Braine HG: Necrosis of the hand after daunorubicin infusion distal to an arteriovenous fistula. *Ann Intern Med* 91(1):58-59, 1979.
8. Henney JE, Von Hoff DD, Rozencweig M, Muggia FM: Thrombophlebitic potential of intravenous cytotoxic agents. *Drug Intel Clin Pharm* 11:266-267, 1977.
9. Hatiboglu I, Mihich E, Moore GE, Nichol CA: Use of sodium thiosulfate as a neutralizing agent during regional administration of nitrogen mustard. *Ann Surg* 156:994-1001, 1962.
10. Vogelzang, NJ: "Adriamycin Flare": A skin reaction resembling extravasation. *Cancer Treat Rep* 63:2067-2069, 1979.
11. Souhami L, Feld R: Urticaria following intravenous doxorubicin administration. *JAMA* 240(15): 1624-1626, 1978.
12. Reilly JJ, Neifeld JP, and Rosenberg SA: Clinical course and management of accidental adriamycin extravasation. *Cancer* 40(5): 2053-2056, 1977.
13. Mehta P, Najar N: Skin ulceration due to faulty adriamycin administration. *Clin Pediatr* 17(8): 663-664, 1978.
14. Wang JJ, Cortes E, Sinks L, Holland JF: Therapeutic effect and toxicity of adriamycin in patients with neoplastic disease. *Cancer* 28:837-843, 1971.
15. Barlock AL, Howser DM, Hubbard SM: Nursing management of adriamycin extravasation. *Amer J Nurs* 79:94-96, 1979.



Laughlin RA, Landeen JM, Habal MB: The management of inadvertent subcutaneous adriamycin infiltration. *Amer J Surg* 137:408-412, 1979.

Bowers DG, Lynch JB: Adriamycin extravasation. *Plastic and Reconstructive Surgery* 61(1):86-92, 1978.

Zweig JI, Kabakow B: An apparently effective counter-measure for doxorubicin extravasation (letter). *JAMA* 239(20):2116, 1978.

Zweig JI, Kabakow B, Wallach RC, Valencic M, Zalusky R: Rational effective medical treatment of skin ulcers due to adriamycin. *Cancer Treat Rep* 63(11-12): 2101-2103, 1979.

Cohen MH: Amelioration of adriamycin skin necrosis: An experimental study. *Cancer Treat Rep* 63(6):1003-1004, 1979.

Siegel DM, Giri SN, Scheinholtz RM, Schwartz LW: Characteristics and effect of anti-inflammatory drugs on adriamycin-induced inflammation in the mouse paw. *Inflammation* 4(2):233-248, 1980.

Dorr RT, Alberts DS, Chen HSG: Experimental model of doxorubicin extravasation in the mouse. *J Pharmacol Meth* 4:237-250, 1980.

Dorr RT, Alberts DS and Chen HSG: The limited role of corticosteroids in ameliorating experimental doxorubicin skin toxicity in the mouse. *Cancer Chemother Pharmacol* 5:17-20, 1980.

Bartkowski-Dodds L, Daniels JR: Use of sodium bicarbonate as a means of ameliorating doxorubicin-induced dermal necrosis in rats. *Cancer Chemother Pharmacol* 4:179-181, 1980.

Gaze NR: Tissue necrosis caused by commonly used intravenous infusion. *Lancet* 2:417-419, 1978.

Jackson IT, Robinson DW: Severe tissue damage following accidental subcutaneous infusion of bicarbonate solution. *Scott Med J* 21:200, 1976.

Dorr RT, Alberts DS: Pharmacologic antidotes to experimental adriamycin skin toxicity. A suggested role for beta adrenergic compounds. (In Press, *Cancer Treat Rep* 1981).

Bristow MR, Billingham ME, Daniels JR: Histamine and catecholamines mediate adriamycin cardiotoxicity. *Proc Amer Assoc Cancer Res and ASCO* 20:118 (Abstr #477), 1979.

Myers CE, McGuire W, Young R: Adriamycin: Amelioration of toxicity by  $\alpha$ -tocopherol. *Cancer Treat Rep* 60(7): 961-962, 1976.

Dorr RT, Alberts DS: Modulation of experimental doxorubicin induced skin toxicity by beta adrenergic compounds. (In Press, *Cancer Res* 1981).

Von Hoff DD, Howser D, Gormley P et al: Phase I study of methanesulfonamide. N-{4-(9-acridinylamino)-3-methoxyphenyl}-(m-AMSA) using a single-dose schedule. *Cancer Treat Rep* 62:1421-1426, 1978.

Ignoffo RJ, Friedman MA: Therapy of local toxicities caused by extravasation of cancer chemotherapeutic drugs. *Cancer Treat Rev* 7:17-27, 1980.

Moertel CG, Reitemeier RJ, Hahn RG: Mitomycin C therapy in advanced gastrointestinal cancer. *JAMA* 204:1045-1048, 1968.

Moore GE, Bross IDJ, Ausman R et al: Effects of mitomycin C (NSC 26980) in 346 patients with advanced cancer. *Cancer Chemother Rep Part 1* 52(6):675-684, 1968.

McClendon BF, Bron AJ: Corneal toxicity from vinblastine solution. *Brit J Ophthalmol* 62:97-99, 1978.

Grant WM: *Toxicology of the Eye* edn. 2, p. 1082, Charles C. Thomas, Springfield, 1974.

Mosci L: Astigmatismo controregola in un caso di caustieazione corneale da vincaloeucoblastina. *Annali de Ottalomologia e Clinica Oculistica* 93:94-100, 1967.

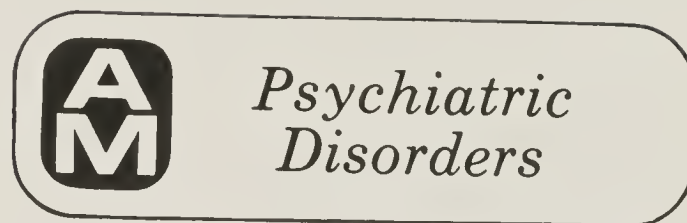
Holland JF, Scharlan C, Gailani S: Vincristine treatment of advanced cancer: A cooperative study of 393 cases. *Cancer Res* 33:1258-1264, 1973.

Bellone JD: Treatment of vincristine extravasation (Letter). *JAMA* 245(4): 343, 1981.

Choy DSJ: Effective treatment of inadvertent intramuscular administration of vincristine. *JAMA* 241(7): 695, 1979.

Bodey GP, Freireich EJ: Initial clinical studies of vindesine (desacetyl vinblastine amide sulfate). *Proc Am Assoc Cancer Res and ASCO* 17:128, 1976.

atum  
The title of the March article, Vol. 38, No. 3, pages 188, 189, 190, should have read, **Pediatric Solid Tumors II: Rhabdomyosarcoma.**



## Psychosurgery: Government Regulating Medicine

Warren F. Gorman, M.D., F.A.C.P.

Editor:  
Thomas E. Bittker, M.D.

The relationship between a patient and his physician began as a trusting one, and continues in most cases to be trusting or fiduciary, but the evolution of a contractual relationship, and in recent years, of an adversary or litigational relationship, has damaged the trust that is basic to the preventive or therapeutic association between physician and patient. In the course of this evolution, increasingly restrictive regulation of the patient-physician linkage has been mandated by the executive, legislative and judiciary branches of our government. This governmental regulation, which may merely hinder treatment, but often prohibits it, may vitiate the fundamental trust of the patient-physician relationship. This paper will show, in the case of psychosurgery, how certain governmental regulations have injected an adversary contaminant into the relationship between patient and physician, to the detriment of both.

From: The College of Law, Arizona State University, Tempe, Arizona, and Institute of Law and Psychiatry, McLean Hospital, Belmont, Massachusetts. Reprint request to Dr. Gorman, 5445 Caminito Rosa, La Jolla, California 92037.

### Three Relationships

The fundamental and essential physician-patient relationship is a fiduciary or trusting one, characterized by a high degree of confidence, trust and good faith which is reposed in one party by the other. Faith in the physician promotes healing and wellness. The fiduciary relationship (from Roman law, *fiducia*= trust) can be legal, personal or medical and is primarily social. Following the socio-legal principle that accompanying every right which is granted, society makes both exceptions and restrictions, the fiduciary relationship between patient and physician is subject to such procedures as statutory licensure, directives by administrative agencies defining disorder and disability, outlining treatment plans and setting fees, to hearings by the State Board of Medical Examiners that are judicial in form and effect.

Following World War II, the growth of prepaid medical care and health insurance for organizations and private individuals enhanced the contractual relationship between a patient and his physician, or group of physicians. A contract is a promissory agreement that creates, modifies or destroys a legal relationship, and a health care contract must abide by the law of contracts, as well as follow the rules imposed on the fiduciary physician-patient relationship by the three branches of government.<sup>1</sup>

But with the militancy of the 1960s, the greening of consumerism and the massive proliferation of citizens' rights, and with minimal development of our responsibilities, the physician-patient relationship acquired a third level — that of the patient versus physician. One out of two U.S. physicians has a malpractice case pending against him,<sup>2</sup> while neurosurgeons have twice as many.<sup>3</sup>

### Psychosurgery

Psychosurgery, a legal term, defined as "the practice of destroying a part of the brain of psychiatric patients,"<sup>4</sup> or "the destruction of normal brain tissue for the control of emotions or behavior"<sup>5</sup> was first performed, using insufficient data and crude techniques, in 1881.<sup>6</sup> Similarly, with wartime exigency, psychosurgery consisting of a radical lobotomy was performed by non-surgeons,<sup>7</sup> which in a prospective and controlled study<sup>8</sup> nevertheless yielded good results.

These early elementary procedures caused surgical, psychiatric and social side effects — deaths, convulsive seizures, altered creativity and improvident remarks by their proponents and opponents. Thus, "prefrontal lobotomy smashes the fantasy life and ruins creative capacity. . . one may speak of the lobotomized individuals as "good solid cake, but no icing."<sup>7</sup> Also, a suggestion, later self-rebutted and retracted, that some rioters' "acts of senseless violence" could stem from a brain condition that might benefit by "psychosurgery."<sup>9</sup>

One science writer called "psychosurgery" partial euthanasia, another, murder of the mind.<sup>10</sup> On the theory that psychiatric surgery could somehow be used

to control unlawful and criminal populations, an observer wrote, "Psychosurgery might even become part of the police armamentarium, along with mace, the club and the service revolver."<sup>10</sup> A psychiatric professor was quoted, "These brain studies are racist. They say that black people are so animal and savage that whites have to carve on their brains to make them human beings."<sup>11</sup>

In the U. S. Congress, a raucous caucus found that blacks and other minorities were menaced by psychosurgical assault or battery, even though less than one percent of psychiatric surgery patients were minority members.<sup>12</sup> Congressman Louis Stokes sponsored a bill that would ban "psychosurgery" "because the practice of psychosurgery is not amenable to effective regulation by either the public or private sector".<sup>13</sup>

Under Public Law 93-348 a National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research was created to study "psychosurgery", appointing three teams, led by scholarly psychologists, to give a definitive psychological and clinical answer to the legal question of banning the surgical procedures. The Commissioners recommended that "psychosurgery be used only to meet the health needs of individual patients, and then only under strict limitation and controls"<sup>13</sup> a dark allusion to the service revolver and murder-of-the-mind theory of "psychosurgery." In its full report "The Commission finds that there is at least tentative evidence that some forms of psychosurgery can be of significant therapeutic value in the treatment of certain disorders or in the relief of certain symptoms. Because of this finding and the belief that the misuse of psychosurgery can be prevented by adequate safeguards, the Commission has not recommended a ban on psychosurgery."<sup>14</sup> These safeguards, which are not novel to medical specialists include a hospital review board, recording of research and treatment by surgery for patients who are competent, informed and voluntary, the three roots of informed consent.

Various Federal [45 CFR 46.109] and state statute [ARS 36-540 -1978] [Oregon Rev St 426.700, 750-755 -1973] [Ohio Rev DC 5122.271 A and B] [Ann CA code Penal Code 2670.35 et seq - 1975] W and I 5426 et seq [Tenn Pub Acts 489. lf 2 -1976] and case law (Kaimowitz (Aden) further regulate the neurological surgeon. These statutes prescribe which patients may receive psychiatric surgery and which may not. Thus, in the Arizona statute, psychosurgery requires an order of the Superior Court, "approving with specificity the use of such treatment" and in the Kaimowitz case, the court held that amygdalotomy "had no scientific basis", and the patient's consent was invalid.<sup>14,15</sup> These statutes and case law limit the performance of psychiatric surgery to a minimum,<sup>16</sup> depriving physicians of knowledge and technique and keeping mental patients with a lifetime c



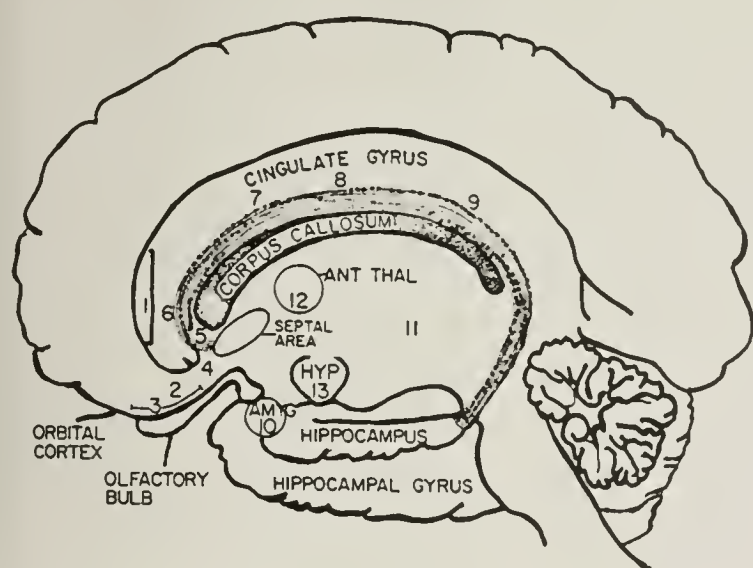


Figure 1  
Some Psychiatric Surgical Procedures

- |                                                 |                                                |
|-------------------------------------------------|------------------------------------------------|
| 1. Bimedial Leucotomy                           | 8. Mid-Cingulotomy                             |
| 2. Yttrium Seeds, White Matter                  | 9. Posterior Cingulotomy                       |
| 3. Orbital Undercutting                         | 10. Amygdalotomy                               |
| 4. Basal Tractotomy and Substantia Innominotomy | 11. Thalamotomies - Dorso-medial, Centromedian |
| 5. Anterior Capsulotomy                         | 12. Ant'r Thalamotomy                          |
| 6. Mesoloviotomy                                | 13. Hypothalamotomies                          |
| 7. Anterior Cingulotomy                         |                                                |

misery and suffering from getting relief by psychiatric surgery.<sup>13</sup>

### Psychiatric Surgery

Psychiatric surgery, a medical term,<sup>17</sup> is the neurosurgical treatment of an extremely severe mental disorder, to be used after all other appropriate treatments have been exhausted.<sup>18</sup> Patients are those with ineluctable depression and anxiety, disabled by mental anguish, with a tortured, painful affect, with diagnoses principally of psychotic or neurotic depressions, obsessive-compulsive neurosis, phobias, anxiety neurosis and schizophrenias with a large component of anxiety, such as pseudoneurotic schizophrenia. Check lists of required previous treatment and future treatment plan, including a supportive family environment and psychiatric aftercare, have been published.<sup>2,19</sup>

Psychiatric surgery is not used for Antisocial Personality Disorder<sup>7</sup> for the epilepsies or for social or political control<sup>12</sup> or for the suppression of social violence.<sup>11</sup> Neuro-surgical treatment of intractable pain will not be discussed here.

Operative procedures interrupt the emotional circuit of Papez in the limbic system originating in the limbic mid-brain region, mainly those white fibers which connect the dorsomedian nucleus of the thalamus with the medial half of the orbital cortex of the frontal lobe<sup>18</sup> the thalamo frontal pathway. Unlike cortical section or the surgically crude radical lobotomy of

Freeman<sup>7</sup> modern procedures do not primarily ablate or displace neurones. Instead, psychiatric surgery primarily interrupts the white fibers of the thalamo frontal pathway. Figure 1 shows 13 of the most common interruptions.

Unlike "psychosurgery" consisting of the "ice-pick lobotomy," modern psychiatric surgery is done with the help of brain scan and accurate ventriculogram, stereotaxic placement or equally precise open placement of small lesions, about 1 cc in volume, by such sophisticated methods as implantation of tiny yttrium 90 seeds or use of monopolar radio frequency current of 8 watts.<sup>18</sup> Deaths almost never occur and convulsive seizures are extremely rare.<sup>12,18,19</sup> Worsening did not occur in any patients in a large thirteen year study and in less than 4% of others.<sup>12,20</sup>

The results reported by the National Commission, noted above, were successful, meaning social cure or remission of signs and symptoms or significant improvement, in 70% to 90% of their cases. Controlled, prospective studies in America and abroad give equally good results.<sup>12,20</sup> Creativity was not impaired, but instead improved, in patients including a gravely disabled architecture professor and artist.<sup>21</sup> A physician, a lawyer and an accountant returned to their occupations.<sup>22</sup> Intellectual function improved, with an increase on the Wechsler Adult Intelligence Scale, both in the verbal and the performance portions.<sup>12</sup>

The term "psychosurgery" — etymologically, surgery on the soul — despite having originally been embraced by some pioneer physicians has, like the term "insanity" become too vague for medicine, while being preserved in statute and case law.<sup>7</sup> But modern, sophisticated psychiatric surgery no more deserves the legal designation "psychosurgery" than does modern medicine merit categorization with cupping, leeches and venesection.

### Summary

The physician-patient relationship has three layers — the fiduciary or trusting, the contractual, and the adversary, or litigational. Psychosurgery, an obsolete medical term, but a current legal term, in the fiduciary relationship is the neurosurgical treatment of extremely severe mental disorder, but in the adversary relationship is the practice of destroying a part of the brain of psychiatric patients. This adversary relationship is facilitated by severely restrictive government agency directives, statutes and case law on psychosurgery, making it professionally hazardous for the medical team to treat their patient. A basic question is this: who is better qualified to prescribe for psychiatric surgery patients — the medical specialists, with the help of their patients, or the legislature and the courts?

### References

1. Miller LJ: Informed consent: I. *JAMA* 244:2100-2103, 1980
2. *Malpractice Digest*. (St. Paul Fire and Marine Insurance Co.), May-June, 1974.

3. Rovit RL: Malpractice-neurosurgery. *Clin Neurosurg* 25:673, 1978.
4. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. *DHEW #(OS)77-0001 and DHEW #(OS)77-0002*, pp 1, 59.
5. Breggin PR: If psychosurgery is wrong in principle. . ? *Psychiat Opin* 14:23-27, 1977.
6. Sugar O: Chaning attitudes toward psychosurgery. *Surg Neurol* 9:331-335, 1978.
7. Freeman W, Watts JW: Psychosurgery. Springfield, Ill. CC Thomas 1950.  
Freeman W: Psychosurgery. (In) Arieti S (ed). *Amer Handbook of Psychiatry*. New York, Basic Books 1959, page 1531.
8. Ball J, et al: The Veterans Administration study of prefrontal lobotomy. *J Clin Exp Psychopathol and Quart Rev Psychiat Neurol*. 20:205, 1959.
9. Mark V, Sweet WH, Ervin FR: On Psychosurgery. *JAMA* 201:895, 1967.  
Mark V, Sweet WH, Ervin FR: Violence in the Brain. New York, Harper,1970.  
Mark V, Neville R: Brain surgery in aggressive epileptics. *JAMA* 226:765-7, 1973.
10. Chavkin S: The Mind Stealers. Boston, Houghton 1978, page 2.
11. Shuman SI: Psychosurgery and the Medical Control of Violence. Detroit, Wayne State Univ Press, 1977 page 339.
12. Corkin SA: Prospective Study of Cingulotomy. (In) Valenstein ES (ed), *The Psychosurgery Debate San Francisco* Freeman, 1980, pages 164-204
13. *New York Times*, January 8, 1976, page 34. *Federal Register*, May 23, 1977, pp. 26318, 26327.
14. Narabayashi H, et al: Stereotaxic amygdalotomy for behaviour disorders. *Arch Neurol* 9:1-16, 1963.  
Heimbürger RF et al: Stereotaxic amygdalotomy for epilepsy with aggressive behavior. *JAMA* 198:741-5, 1966.  
Andy OJ, Jurko M: The Human Amygdala (Sweet b) pp. 417-427.  
Field WS, Sweet WH, (eds), *Neural Bases of Violence and Aggression*. St. Louis, WH Green, 1975, pp 392-400.
15. Gaylin WM et al: Operating on the Mind. New York Basic 1975. p. 18.
16. Donnelly J: The incidence of psychosurgery in the US. *Amer J Psychiat* 135:1476-80, 1978.
17. viz: International Society of Psychiatric Surgery; World Congress of Psychiatric Surgery, proceedings (Reference 18, (Sweet b).
18. Sweet WH: Treatment of medically intractable mental disease by limited frontal leucotomy - justifiable? *N Eng J Med* 289:1117-25, 1973. Sweet WH, et al: Neurosurgical Treatment in Psychiatry, Pain and Epilepsy. Baltimore, Univ Park Press, 1977 Sweet b).  
Sweet WH: Current Status of Psychiatric Surgery. (In) Bailey JP, Brodie HKH (eds), *Controversies in Psychiatry*, Philadelphia, Saunders 1978, pp 107-125.  
Sweet WH: Therapeutic Potential and Risks of Limited Frontal Leucotomy. (In) McCabe OL (ed), *Changing Human Behavior* New York, Grune, 1979, pp 115-127.
19. Ballantine HT et al: Cingulotomy for Psychiatric Illness: Reoprt of 13 Years' Experience. (Sweet b). pp 333-353.  
Bailey HR, et al: Cingulotractotomy and Related Procedures for Severe Depressive Illness. (Sweet b) pp 229-252.
20. Mitchell-Heggs, et al: Stereotaxic limbic leucotomy - a follow up. *Br J Psychiat* 128:226-240, 1976.  
Tan E, et al: Bimedial leucotomy in obsessive-compulsive neurosis *Br J Psychiat*. 118:155-164, 1971.  
Kelly D et al: Modified leucotomy assessed clinically, physiologically and psychologically. *Br J Psychiat* 120:19-29, 1972.
21. Bingley T, Leksell L et al: Long Term Results of Stereotactic Anterior Capsulotomy in Chronic Obsessive-Compulsive Illness. (Sweet b). 287-300.  
Scoville B, Bettis DB: Results of Orbital Undercutting Today: A Personal Series. (Sweet b). 189-202.
22. Martin WL et al: Stereotactic Cingulotomy: Results of Psychological Testing and Clinical Evaluation Preoperatively and Postoperatively. (Sweet b). 381-386.

# Socialism: From Doctor's Dream to Doctor's Dilemma

Jane M. Orient, M.D.

## Abstract

Many discussions about health car delivery proceed from the assumption that medicine will inevitably become more collectivized. In scholarl publications, the trend is accepted as favorable development. References from journals of Marxist polemic are quoted as respectable sources. A review of some of these currently cited articles in conjunction with writings of pioneers in socialist theory is an exercise in dialectic giving insight into the remarkable change in the motivations of avowed socialists, as well as the common ground they share with advocates of current fads like holism and affirmative action.

Key Words: socialism; economic medical; philosophy, medical; delivery of health care.

Man observes, inescapably, that all human institutions are imperfect, even those for health care. Over a century ago, a hopeful theory arose. If power could be transferred from the grasp of individuals with their frailties, into the hands of the collective, utopia might be within reach after all.

From a vision of a Fabian socialist in 1850, socialized medicine has been transformed into a nearly worldwide reality. The mainstream medical literature of our day chronicles its attractiveness. In 1964 a topic for high school debaters, in 1980 the precepts of socialism are taken as axiomatic by many spokesmen for academic medicine, who may not realize or acknowledge the foundations of their ideas. The question

From: Dr. Orient is Adjunct Assistant Professor, General Internal Medicine, University of Arizona College of Medicine. Reprint requests to Medical Square, Suite 1601 North Tucson Boulevard, Tucson Arizona 85716



no longer seems to be whether medicine shall be more collectivized, but only how extensively or how fast. Though the effects of Marxist practice have now been observable for many decades, the concept of the controlled experiment has not been applied.

As socialist popularity has grown, the reason for its enthusiastic support has undergone a dramatic metamorphosis, showing the perennial versatility of this ideology. Conceived as a way to rescue the beleaguered physician, many now favor it as a way to divest him of his material gains and his authority.

### **The motive: From Self-Interest to Altruism**

Although altruism is the byword of current proponents of socialism, its early spokesmen, such as George Bernard Shaw, thought that a public medical service would actually improve the working conditions of the doctor: "The doctor needs our help for the moment much more than we often need his . . . The real woes of the doctor are the shabby coat, the wolf at the door, the tyranny of ignorant patients, the work-day of 24-hours, . . ."<sup>1</sup>

Rudolf Virchow, renowned Prussian pathologist, also known for joining the workers on the barricades in 1848, is claimed by American Marxists as an early friend of their cause. He is credited with pioneering the idea of social medicine through his prescriptions of progressive taxation and agricultural cooperatives for typhus.<sup>2</sup> He proclaimed that medicine is a social science, and politics nothing more than medicine on a larger scale.<sup>3</sup> Yet, while purporting to have the problems of the working class at heart, Virchow himself admits to motives of self-interest. At the time of the Industrial Revolution, physicians lost their status as members of the old middle class: "At a railroad a young man of my age earns as much during a day as I do during a month. Of course, I wouldn't change with him, as I love medicine now more than ever. But you will realize that this extraordinary proletarianization makes me examine the use of such a situation."<sup>4</sup> Clearly, a true Marxist must consider this to be a revisionist attitude toward the proletariat.

Since the capitalist economy changed the physician's position drastically for the better, socialist theory has responded appropriately. Lest potential physicians be attracted to the profession through selfish hope of personal gain or fulfillment, a change in the incentive system is demanded, as has already occurred in advanced socialist nations. In the Soviet Union, the goal of lower wages for physicians than for factory workers has been achieved. Yet the doctor:population ratio has been increased to the highest in the world (23.8 doctors/10,000

persons compared with 15.8 in the U.S.), and the waiting time for operations is only three to five years.<sup>5</sup> While Soviet physicians leave the office on time, they are expected to be much more productive than their American counterparts. The work norm calls for a minimum of six patients to be seen per hour, including paper work. Lest the physician be tempted to treat patients abruptly, or to make wrong diagnoses, patients have the recourse of writing letters to the editor, or complaining to the Health Ministry. Punishment may range from a reprimand to a court trial. Whereas Marxist writers tend to attribute problems of all types to the capitalist system, all errors under the exemplary socialist system are the responsibility of the individual.<sup>6</sup> George Bernard Shaw's policy can be implemented at last: "Treat every death as a possible, and under our present system, a probable murder, . . . and execute the doctor, if necessary. . ."<sup>1</sup>

### **From Elitism to Egalitarianism**

Fabian socialists, far from condemning elitism, actually argued in its favor: "If the practice of law not only led to a judge having to hang, but the hangman to judge, or if in the army matters were so arranged that it would be possible for the drummer boy to be in command at Waterloo whilst the Duke of Wellington was playing the drum in Brussels, we should not be consoled by the reflection that our hangmen were thereby made a little more judicial-minded, and our drummers more responsible, than in foreign countries where the legal and military professions recognized the advantages of division of labor."<sup>1</sup>

Not only in general theory, but in specific application to medicine, Shaw aligned himself with the writers of the Flexner report, which is now so often criticized by socialists and "holists" because it advocates specialization and centralization. In Shaw's words: "Another advantage of public medical work is that it admits of . . . the distribution of the work in such a manner as to avoid wasting the time of highly qualified experts on trivial jobs . . . Men whose dexterity as operators or almost divinatory skill in diagnosis are constantly needed for difficult cases, are poulticing whitlows, vaccinating, . . . prescribing ether drams for ladies with timid leanings toward dipsomania . . . In no other profession is the practitioner expected to do all the work involved in it from the first day of his professional career to the last as the doctor is . . . The bishop is not expected to blow the organ or wash the baby he baptizes . . . [And in the medical profession,] not only is the first-class man set to do third-class work, but what is much more terrifying, the third-class man is expected to do first-class work. Every general practitioner is

supposed to be capable of the whole range of medical and surgical work at a moment's notice. . ."<sup>1</sup>

Modern Marxists, on the other hand, recognize elitism as a vicious evil, to be annihilated. As Mao Tse-tung explained, "any specialized skill can be capitalized on, and so may lead to arrogance and contempt of others."<sup>7</sup> The reasoning of Shaw could be characterized as an example of the way in which physicians justify their privileged status; the idea that medicine is a demanding field, requiring special ability, is dubbed the Excellence Deception by Marxists.<sup>2</sup>

While changing the economics of medicine can help to destroy elitism, socialist theorists would insure its demise through "moral incentives." In China, for example, medical students are selected on the basis of motivation to "serve the people," as judged by the "associated masses" and local political authorities. Medical science has been made accessible to the most educationally disadvantaged student by the simple expedient of deleting any "esoteric" material.<sup>2</sup> The success of this "affirmative action" approach is attested to by the overwhelmingly favorable evaluation given by the scholarly American literature in internal medicine: seventeen admiring and three critical major articles in the past decade. The decision of Chinese medical schools to revive examinations is relegated to the letters to the editor.

Inspired by Mao Tse-tung, other revolutionaries have applied his principles, notably in Cuba. Even though half the physicians fled in the first three years after 1958 because of the "redefinition of their class privileges," it is claimed that no shortage of qualified personnel resulted, because alternate modes of practice received full recognition. Witch doctors are now employed by the Ministry of Health.<sup>8</sup> Though "orthodox" physicians are included in the central planning committees, to give them a "sense of participation," it is feared that they may bring their "disease orientation" into the decision-making process.<sup>9</sup>

While Marxist practice has advanced prodigiously, it has not yet matched Marxist theory, in which specialization would ideally be abolished almost entirely (except in the field of behavior control). Some initial inconvenience might result, such as a decrease in labor productivity, but theorists claim that eventually education would provide all with the necessary competence in agriculture, transportation, communication, housing construction, and medical work. This multicompetence, it is alleged, would lead to the disappearance of overwork and boredom, and would thereby improve health.<sup>10</sup> Perhaps the "diseases of



prosperity" could be overcome if only we could eliminate prosperity!

Inspired by the examples of the progressive nations, American revolutionaries propose ways in which we can undermine specialization in this country, thereby overcoming "professional stratification" in medicine. Since nurses and orderlies often have a more intimate understanding of the patients' needs than physicians do, one prominent writer suggests that the roles of orderly, physician, laboratory technician, aide, and radiology technician become less differentiated. To accomplish this, periods of time might be set aside when the roles are exchanged: for example, physicians could work as orderlies, and the latter could share responsibility with physicians.<sup>11</sup> Thus the antithesis of Shaw has risen.

Once equality among caregivers is accomplished, equality of care for all patients will follow, ending what is seen as a major source of dissatisfaction with our health care system. While this has not yet occurred in Britain, socialist apologists attribute this failure to the incompleteness of the revolution. The

Private-Public Contradiction, resulting from the persistence of a vestigial private sector, allows the Brain Drain and the Dumping Syndrome to develop. The more talented care-givers can escape to the private sector, and refer to the public sector such undesirable patients as drug abusers and derelicts.<sup>2</sup> (Actually, the Dumping Syndrome may occur if any alternatives are allowed; for example, the personnel at the county hospital are extremely conscientious about asking each patient whether or not he is a veteran.) Socialism, by its inherent nature, must be universal to succeed.

#### Conclusions

Marxist praxis has been a recurring theme in the American medical literature, but the change in the motives of the proponents has passed unnoticed. Originally advocated as a means to improve the lot of the physician, and to allow a more scientific mode of practice, its allurements did not vanish when our capitalist system accomplished these ends, only too well. Undaunted, Marxists changed their theme: physicians are too well off, and science has become too

powerful, excluding from practice those who happen to be less well-trained, or who subscribe to unorthodox theories of medicine. Specialization has the consequence that not all patients have equal access to care. Similar notions receive a broader base of support from "holists."

The remedy, as seen by socialists, is to dismantle the stratified structure of medical practice. The results are then to be examined in the light of the faith of Mao Tse-tung (who writes parables about the People moving mountains rather than the research principles of Virchow, who demanded observation and experimentation).

Citations from blatantly ideological Marxist journals are finding their way into respected publications, which do not have the same standards for evaluating basic assumptions about philosophy as they apply to treatises about the immune response or other scientific subjects. For our system, grounded on freedom and individual initiative, only the third method of Virchow may eventually be applicable: autopsy.



*State of the Art*

## An Approach to Sexually Transmitted Diseases

Paul J. Rutala, M.D.

Editor:  
Eric H. Prosnitz, M.D.

From: University of Arizona Health Sciences Center, Department of Internal Medicine, Section of General Medicine, Tucson, Arizona 85724.

In the past few years, understanding and teaching of venereal disease has undergone radical change and the list of diseases recognized to be sexually transmitted has grown many fold. (The term "sexually transmitted disease" ["STD"] has replaced "venereal disease" in most usages.)

Classic venereal diseases have been discovered to be present in locations where they were not commonly recognized before.

STDs have been discovered to exist in an asymptomatic contagion pool larger than ever before appreciated.

Changing public mores and life styles have forced the clinician to consider sexual behavior when evaluating complaints not commonly recognized to be sex-related in the past.

If the practitioner is not aware of these changes and is not comfortable with asking appropriate questions and performing pertinent examinations, he may be unable to correctly diagnose and treat his patients with STDs. For example, over 50% of all homosexual males diagnosed with primary syphilis at venereology clinics in the United Kingdom have anorectal chancres, compared to only 15% of homosexual males diagnosed in the United States.<sup>1</sup> This discrepancy is almost surely due more to variation in physician behavior than to differing sexual practices of the patients. Failure to intervene appropriately and to eradicate the causative organism



from both the infected individuals and others exposed to infection can only further spread disease.

A major factor in broadening understanding of the modern nature of STDs has been research among male homosexuals. With more openness regarding such sexual practices as oral-genital, oral-anal, and oral-perineal contact and anal intercourse, several facts have now been realized: 1) Diseases that occur in genital mucosal areas, e.g. the urethra, the vagina, and the cervix, may also occur in non-genital mucosal areas employed for sexual purposes, e.g. the pharynx and the rectum. 2) Non-venereal diseases which have a fecal-oral route of transmission may be spread by sexual activity involving oral contact with the anus or other body parts contaminated by feces. Homosexuals as well as heterosexuals engaging in such practices are susceptible to the newer STDs.

Emphasis on homosexual males in STD research is largely due to the fact that certain diseases have reached near epidemic proportions among this group. These include: 1) diseases with primary skin manifestations, spread by intimate body contact, e.g., venereal warts, herpes simplex, crab lice and scabies; 2) enteric diseases which may be spread by anorectal sexual contact and/or ingestion of fecal material, e.g. hepatitis, shigellosis, amebiasis, giardiasis, and enterobiasis; and 3) gonorrhea and syphilis occurring as primary disease in non-venereal sites, notably, oropharyngeal and anorectal areas.

The high incidence of some STDs among homosexuals has meant that the patient population in even non-homosexually oriented STD clinics is more highly comprised of homosexuals than is the general population. The Center for Disease Control has reported that nearly half of all male patients with syphilis claim sexual contact with other males.<sup>2</sup> Of 5,000 patients seen annually by the Venereal Disease Clinic of the San Francisco Department of Public Health, 70%-80% are homosexual men.<sup>3</sup> Several factors contribute to this phenomenon: 1) Male homosexuals, in general, tend to be relatively promiscuous, thereby increasing the pool of those susceptible to infection. One study profiling male homosexual patients with STDs (although perhaps over-estimating promiscuity) reported that the average infected man had visited public baths for sexual purposes several times a week, and had had 2-3 sexual contacts each visit.<sup>4</sup> 2) Anonymity in many of those sexual encounters makes tracing and subsequent treatment of contacts difficult. 3) Homosexuals have no need to employ certain birth-control devices which can prevent spread of some STDs, e.g. the condom, which interferes with the spread of gonorrhea and syphilis. 4) Societal views, including those of the medical profession, have traditionally condemned homosexuality and therefore deterred some homosexuals from seeking medical care in a setting where they might expect castigation for their life style. It should be noted that the literature contains little

information regarding STDs in homosexual women. Lesbians appear to have a lesser risk of STDs than do heterosexual women or men of whatever sexual orientation. This finding has not been explained fully.<sup>5</sup> Whatever the reason, a 1968 review showed 25% of STDs in men involved persons with homosexual contact whereas less than 2% of STDs in women involved persons with partners of the same sex.<sup>6</sup> Lack of discussion of STDs in lesbians in this review is due to a lack of available information.

What are perhaps the most common STD syndromes seen by clinicians will not be discussed here. Those include: 1) urethritis and ulcerative lesions of the genitalia in males; and 2) cystitis, urethritis, vaginitis, and genital ulcerations in females. The purpose of this discussion is to highlight historical, physical, and laboratory evaluations which can bring the clinician to diagnosis of what may not be expected to be an STD and to illustrate how multifaceted proper therapy must be, particularly in patients who present with other than classic complaints which make one immediately consider an STD.

As an illustration of these points, one syndrome will be discussed in detail. Gonorrheal proctitis is an infection for which specific therapy exists but which may go undiagnosed because of hesitance or ignorance on the part of a clinician. Even if the infection is diagnosed correctly, patient education may remain incomplete and patient ignorance may increase the likelihood of disease spread.

The discussion is intended for the practitioner who sees a variety of patients, not for one with a venereal disease practice. Comments regarding philosophy of approach to the STD patient are made based upon personal experiences and may reflect personal bias. Such comments are not meant as rules of patient care and are not suggested to be applicable to every STD patient. They are intended to serve as food for thought for the practitioner as he approaches the patient with complaints potentially related to sexual behavior.

#### **Rectal Symptoms of Potentially Gonorrheal Origin**

Proctitis caused by *Neisseria gonorrhoeae* may be asymptomatic or produce rectal burning or itching; pain, pressure or fullness in the rectum; rectal bleeding or discharge; diarrhea; or mucus in the stools. Patients with such symptoms should be questioned as to history of anal intercourse, anorectal instrumentation with other objects, and oral-anal or oral-perineal contact with sex partners.

Merely asking the male patient if he has engaged in homosexual relationships is inadequate history taking. The variety of practices engaged in within a particular homosexual encounter or even within an ongoing relationship is at least as varied as within heterosexual interactions. A disservice is done the patient if stereotyped sex roles are presumed and more specific queries are not made. The practitioner must inquire about tendencies to engage in or to avoid various



practices, rather than merely ask about sexual orientation in order that the likelihood of particular diseases can be assessed in each patient.

Certainly not all persons who have engaged in sexual practices, which could expose them to anorectal gonorrhea nor all who have consistent symptoms, will actually have the disease. However, in a recent study of 1032 male homosexuals having those complaints listed above as potentially those of rectal gonorrhea, Lebedeff and Hochman found 436 (42%) to have positive rectal cultures for *N. gonorrhoeae*. Individual symptoms were of little or no help in deciding if the patient had gonorrhea. Only the complaint of mucus in the stools (reported by 71% of symptomatic, culture-positive patients) occurred at a statistically significant increased rate, among those eventually proven to have gonorrhea. The clinical utility of that finding, however, is questioned by the authors. The same symptom was present in 65% of culture-negative patients.

Physical examination, utilizing the anoscope, was also of little help in gathering evidence supporting the diagnosis of gonorrheal proctitis. The study showed that although generalized exudate was seen in the majority of patients who were culture-positive, 74% of patients with negative cultures had an anoscopic examination which was abnormal in some way. Anoscopy was of some utility in leading to diagnoses in the 58% of the group who had rectal symptoms but were culture-negative for *N. gonorrhoeae*. Causes for symptoms in the culture-negative group might include lacerations of the anus or rectum; hemorrhoids; fissures; abscesses; infection with *Enterobius vermicularis*, bacteria (e.g., *Shigella* species), amebae, *Giardia lamblia* or non-treponemal spirochetes; and inflammatory bowel disease.

Obviously, from the list of other disorders causing complaints similar to those of anorectal gonorrhea, it should be clear that even among the population studied not all symptomatic rectal abnormalities were of sexually transmitted origin. Some are potentially sexually-related (such as rectal lacerations), but are not infectious. Others bear no probable relationship to the patient's sexual orientation and/or practices. This last group makes it essential that it be made clear to the patient that complaints will be assessed from all standpoints. Questioning regarding sexual behavior must be thorough, but should never imply that the practitioner assumes *a priori* that the complaint is sex-related.

In taking a sexual history, particularly one for purposes of diagnosing what may be an STD, the practitioner enters a private, emotionally-laden area of his patient's life. To assure obtaining the greatest amount of accurate information, the practitioner must make it perfectly clear to the patient why it is necessary to obtain such information. Too often the patient is left unaware of the clinical importance of questions asked of him/her. Without educating the patient about the importance of certain information, taking a full sexual history can appear to be unnecessary prying. When the

relevance of questions is explained to the patient, there should be no objection to the nature of those questions.

To summarize: 1) Patients who have engaged in anal intercourse and have rectal complaints have a slightly less than 50% chance of having anorectal gonorrhea. 2) Anoscopy may rule-out non-gonococcal causes for rectal symptoms (e.g., lacerations, hemorrhoids, and fissures) but cannot reliably rule-in gonorrhea. 3) Only rectal culture can make the diagnosis of anorectal gonorrhea. Previous studies have shown Gram stains to be compatible in only slightly more than 30% of either female or male patients with culture-proven rectal gonorrhea. 4) If the clinician does not ask about sexual behavior in a matter-of-fact, non-judgmental, educational manner (making it likely that the patient will answer honestly), gonorrhea and other STDs or sexually related disorders may not even appear on the differential diagnosis.

Once the diagnosis of anorectal gonorrhea has been entertained, when and how to treat are somewhat debatable. For patients with STDs in general, waiting for results of laboratory testing may not be the best course to follow. Rates of failure to return for follow-up are high among this patient population, being 25%-30% in two separate studies. The practitioner may have to decide when to treat based only upon his index of suspicion and the nature of the individual patient-physician relationship, i.e., presumed likelihood of follow-up visits. If the physician does not gather full information upon which to base his suspicions, some patients will be treated unnecessarily and others, by lack of treatment, will continue to harbor an infection which they may spread. If a patient presents with rectal complaints consistent with the diagnosis, gives a history of anal intercourse, and other obvious causes of the problem are ruled out, then it may be best to treat the patient at the time of the initial visit and to obtain confirmation of the diagnosis later, particularly if the patient's pattern of sexual behavior makes it likely he/she will be having multiple, anonymous sex partners.

A subgroup of infected patients should be mentioned here — asymptomatic patients with positive anorectal cultures for *N. gonorrhoeae*. In one study of 662 random clinic patients who admitted anal intercourse, Deheragoda found 100 (15%) to be culture positive for *N. gonorrhoeae*\* but only 32 of those were symptomatic. Similar rates of symptomatic disease were found in another study of 500 homosexual men reported by Merino and Richards.<sup>13</sup> Among the asymptomatic, the clinician may have to respond only to a history of sexual behavior which makes his patient a likely infected host. Some venereologists suggest that persons who have multiple anonymous sexual contacts on a regular basis should have serology, gonorrhea screening cultures of potentially-infected sites, and even stool studies for

\*Prevalence of anorectal gonorrhea among homosexual men attending venereal disease clinics has been reported as higher in other studies ranging from 28%-55%.<sup>11,12</sup>



# In Hypertension\*...When You Need to Conserve K<sup>+</sup>

## Every Step of the Way

Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

ADD OR SUBSTITUTE  
GUANETHIDINE

ADD  
VASODILATOR

ADD BETA-BLOCKER, CNS  
INHIBITOR OR RESERPINE

**EFFECTIVE STEP 1  
DIURETIC THERAPY<sup>†</sup>** (when the  
combination represents previously titrated dosage)

<sup>†</sup>Step 1 usually consists of an initial phase (a diuretic alone), a titration phase (dosage adjustment and/or addition of a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent) and a maintenance phase (a diuretic alone or in combination with a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent).

### Serum K<sup>+</sup> and BUN should be checked periodically (see Warnings).

Before prescribing, see complete prescribing information in SK&F Co. literature or PDR. A brief summary follows:

#### WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K<sup>+</sup> levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K<sup>+</sup> intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, throm-

bocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Watch for signs of impending coma in severe liver disease. If spironolactone is used concomitantly, determine serum K<sup>+</sup> frequently, both can cause K<sup>+</sup> retention and elevated serum K<sup>+</sup>. Two deaths have been reported with such concomitant therapy (in one, recommended dosage was exceeded, in the other serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with thiazides. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Anti-hypertensive effect may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with

possible metabolic acidosis. Dyazide® interferes with fluorescent measurement of quinidine. Hypokalemia, although uncommon, has been reported. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and Dyazide® should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. Dyazide® should be withdrawn before conducting tests for parathyroid function.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth, anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances. Necrotizing vasculitis, paresthesia, icterus, pancreatitis, xanthopsia and rare allergic pneumonitis have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus constituents.

**Supplied:** Bottles of 100 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only) in Patient-Pak™ unit-of-use bottles of 100.

©SK&F Co. 1980

**SK&F CO.**  
a SmithKline company  
Carolina, P.R. 00630



# Motrin<sup>®</sup> vs aspirin w/codeine...

(ibuprofen)





# compare the analgesic effect

A Motrin 400 mg dose relieved postsurgical dental pain as effectively as a combination of 650 mg aspirin and 60 mg codeine (two aspirin-with-codeine No. 3 tablets) in a study of 129 patients.

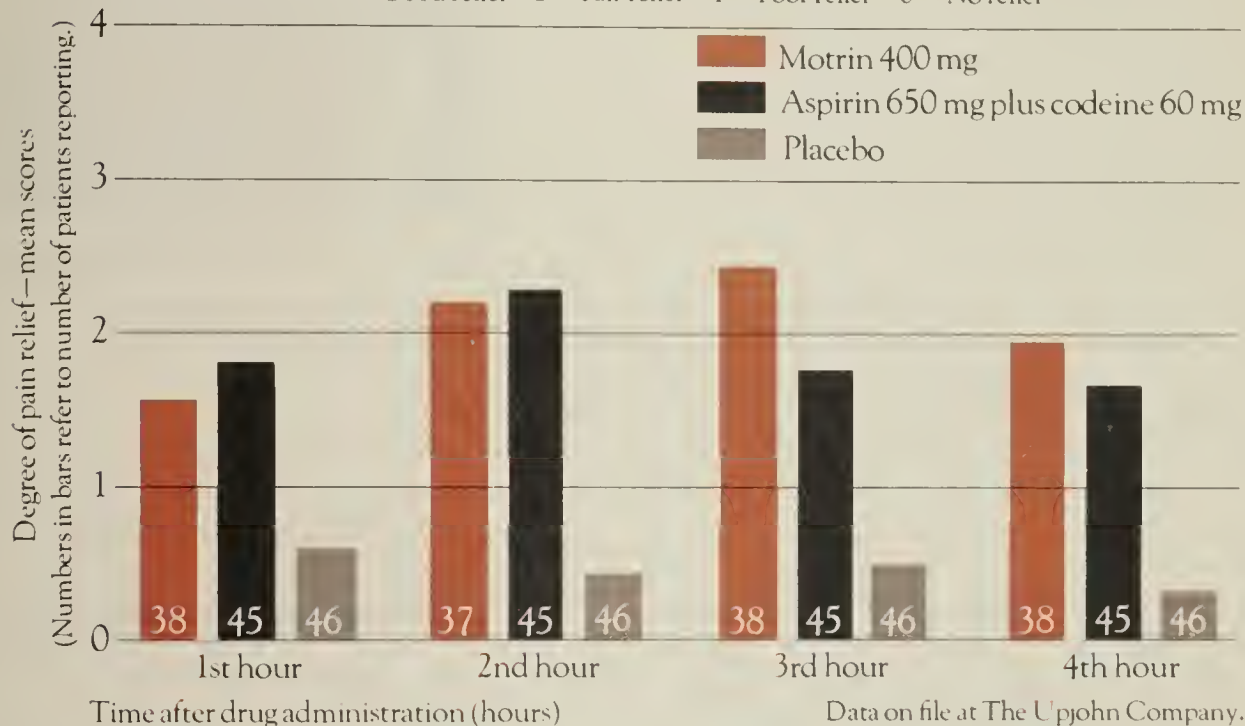
In this double-blind, placebo-controlled, randomized study, no statistically significant difference in relief of pain was noted at 1, 2, and 4 hours between the Motrin and aspirin-with-codeine groups... with Motrin being significantly more effective ( $p = 0.03$ ) at the three-hour interval.

Active treatment was significantly more effective ( $p < 0.0001$ ) than placebo at all time intervals.

## Comparison of pain relief

### Motrin vs aspirin-codeine combination

4 = Excellent relief 3 = Good relief 2 = Fair relief 1 = Poor relief 0 = No relief



One tablet q4-6h prn

For relief of mild to moderate pain:

**Motrin**<sup>®</sup> 400mg TABLETS  
ibuprofen, Upjohn

- Not a narcotic • Not addictive • Not habit forming • Nonscheduled
- Acts peripherally • Relieves pain rapidly • Relieves inflammation • Indicated in acute and chronic pain • Well tolerated (The most common side effect with Motrin is mild gastrointestinal disturbance.)

Please turn the page for a brief summary of prescribing information.

**Upjohn**

**Motrin®** (ibuprofen)

now proved an  
effective analgesic for  
mild to moderate pain

**Motrin® Tablets** (ibuprofen, Upjohn)

**Indications and Usage:** Relief of mild to moderate pain.

Treatment of signs and symptoms of rheumatoid arthritis and osteoarthritis during acute flares and in long-term management. Safety and efficacy have not been established in Functional Class IV rheumatoid arthritis.

**Contraindications:** Individuals hypersensitive to it, or with the syndrome of nasal polyps, angioedema and bronchospastic reactivity to aspirin or other nonsteroidal anti-inflammatory agents (see WARNINGS).

**Warnings:** Anaphylactoid reactions have occurred in patients with aspirin hypersensitivity (see CONTRAINDICATIONS).

Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Ulceration, perforation, and bleeding may end fatally. An association has not been established. Motrin should be given under close supervision to patients with a history of upper gastrointestinal tract disease, only after consulting ADVERSE REACTIONS.

In patients with active peptic ulcer and active rheumatoid arthritis, nonulcerogenic drugs, such as gold, should be tried. If Motrin must be given, the patient should be under close supervision for signs of ulcer perforation or gastrointestinal bleeding.

**Precautions:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue Motrin and the patient should have an ophthalmologic examination, including central visual fields.

Fluid retention and edema have been associated with Motrin; use with caution in patients with a history of cardiac decompensation.

Motrin can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and those on anticoagulant therapy.

Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain, or edema.

To avoid exacerbation of disease or adrenal insufficiency, patients on prolonged corticosteroid therapy should have therapy tapered slowly when Motrin is added.

**Drug interactions.** *Aspirin:* Used concomitantly may decrease Motrin blood levels.

*Coumarin:* Bleeding has been reported in patients taking Motrin and coumarin.

**Pregnancy and nursing mothers:** Motrin should not be taken during pregnancy nor by nursing mothers.

#### **Adverse Reactions**

##### **Incidence greater than 1%**

**Gastrointestinal:** The most frequent type of adverse reaction occurring with Motrin is gastrointestinal (4% to 16%). This includes nausea,\* epigastric pain,\* heartburn,\* diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of the GI tract (bloating and flatulence). **Central Nervous System:** Dizziness,\* headache, nervousness. **Dermatologic:** Rash\* (including maculopapular type), pruritus. **Special Senses:** Tinnitus. **Metabolic:** Decreased appetite, edema, fluid retention. Fluid retention generally responds promptly to drug discontinuation (see PRECAUTIONS).

\*Incidence 3% to 9%.

##### **Incidence less than 1 in 100**

**Gastrointestinal:** Upper GI ulcer with bleeding and/or perforation, hemorrhage, melena.

**Central Nervous System:** Depression, insomnia. **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme. **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure. **Special Senses:** Amblyopia (see PRECAUTIONS). **Hematologic:** Leukopenia, decreased hemoglobin and hematocrit.

##### **Causal relationship unknown**

**Gastrointestinal:** Hepatitis, jaundice, abnormal liver function. **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities. **Dermatologic:** Alopecia, Stevens-Johnson syndrome. **Special Senses:** Conjunctivitis, diplopia, optic neuritis. **Hematologic:** Hemolytic anemia, thrombocytopenia, granulocytopenia, bleeding episodes. **Allergic:** Fever, serum sickness, lupus erythematosus syndrome. **Endocrine:** Gynecomastia, hypoglycemia. **Cardiovascular:** Arrhythmias. **Renal:** Decreased creatinine clearance, polyuria, azotemia.

**Overdosage:** In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine, so alkaline diuresis may be beneficial.

**Dosage and Administration:** Rheumatoid arthritis and osteoarthritis, including flares of chronic disease: Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d.

Mild to moderate pain: 400 mg every 4 to 6 hours as necessary for relief of pain.

Do not exceed 2400 mg per day.

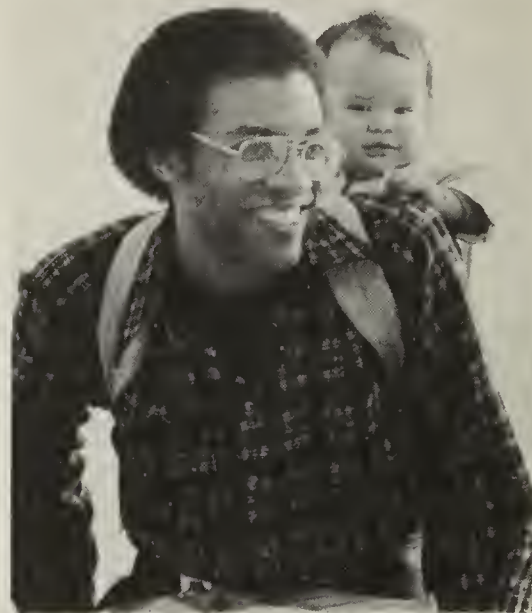
**Caution:** Federal law prohibits dispensing without prescription.

For additional product information, see your Upjohn representative or consult the package insert.

**Upjohn** THE UPJOHN COMPANY  
Kalamazoo, Michigan 49001 USA

MED B-4-S

# WHY I'M A UNITED WAY VOLUNTEER



**STEPHEN GRAHAM**

**Home:** Seattle, Washington

**Career:** Attorney

**Age:** 29

**Married:** One daughter

**Interests:** Hiking, writing, cartooning, bicycling and volunteering for United Way

"Because there's more to my life than just me.

"Like being with my family. Hiking along the timberline. And getting involved in my community.

"Volunteering for United Way adds another dimension to my life. I'm putting my skills to work for the benefit of the entire community. And I'm meeting all kinds of people who are doing the same.

"Most important of all, I'm learning more about human care needs. And how—as a United Way volunteer—I can make a difference here in Seattle. It's a valuable lesson in leadership.

"By helping shape my community's future, through United Way, I'm more than just living my life. I'm fulfilling it."



Thanks to you...  
it works...

for ALL OF US **United Way**



A Public Service of This Magazine & The Advertising Council



parasites and bacteria done on a regular basis, perhaps as frequently as every three months.<sup>14</sup> That commendation bears merit when one considers the above asymptomatic rate for anorectal disease, a rate approaching 90% for lack of symptoms in pharyngeal gonorrhea,<sup>13</sup> and the classic asymptomatic nature of syphilitic chancres which, if occurring in the anorectal area, may easily go unnoticed until the disease reaches at least the secondary stage.

Precisely how to treat anorectal gonorrhea, whether symptomatic or not, is also somewhat unclear. A review by Klein and co-workers in 1977 suggested that therapeutic regimens recommended by the United States Public Health Service (USPHS) for uncomplicated gonorrhea were adequate to treat anorectal disease in women but might not be effective in men. Many of the studies reviewed which had involved men had not, however, rigorously employed the USPHS recommendations.<sup>15</sup>

Later studies on the treatment of anorectal gonorrhea have indicated that at least some of the treatment alternatives endorsed by the USPHS are effective in men. It does appear that tetracycline as normally administered for uncomplicated gonococcal urethritis\* is inadequate to achieve a high rate of cure. A 15% rate of treatment failure with this drug was reported by Lebedeff and Hochman compared to less than 5% failure when 4.8 million units of parenteral procaine penicillin was employed in conjunction with 1 gram of probenecid.<sup>7</sup>

Another drawback of therapy with tetracycline is the fact that it is not administered as a single dose. The above mentioned rate of failure to return for follow-up makes expected patient compliance a factor in selecting the treatment of choice (at least in public clinics). A regimen with relatively easy compliance, i.e., single-dose schedule, is often preferable. Procaine penicillin G used in conjunction with probenecid offers both documented high rates of cure and a single dose administration schedule.

Results of therapy with single-dose ampicillin plus probenecid have been variable in anorectal gonorrhea, ranging from 85%-95% effective.<sup>7,15,16</sup> In any case, single-dose ampicillin is not so effective as procaine penicillin for treatment of possible concurrent oropharyngeal gonorrhea infection<sup>17</sup> and only procaine penicillin has the further advantage of being known to be effective in treatment of early syphilis, which may be present in the same patient.<sup>18</sup>

Another single-dose regimen employs spectinomycin and it may be the most effective drug for treatment of the penicillin-allergic patient.<sup>10,16</sup> However, spectinomycin is more expensive than other antibiotics employed and would also be inadequate to treat concomitant oropharyngeal gonorrhea.<sup>19,20</sup> If the clinician is relatively sure of follow-up, it may be more

cost effective to treat the penicillin-allergic patient with tetracycline, obtain a follow-up culture, and only if the patient then falls into the 15% failure group to treat again with spectinomycin.\* It should be noted that official recommendations are to re-culture *all* culture-proven cases of gonorrhea of whatever site 7-14 days after treatment to test for cure. The low rate of return for follow-up often makes this difficult and the clinician should take this into consideration also when choosing a particular drug.

The final steps in treatment of gonorrheal proctitis (as for essentially any STD) are full patient education and an attempt to break the chain of contagion. Diligence must be exercised in contact tracing, whenever that is made possible by lack of anonymity in the individual's sexual relationships. This can only be accomplished if: 1) the patient is fully aware of the consequences of infection within the community; and 2) a non-judgmental atmosphere of safety is fostered by the physician.

Contact tracing by public health departments is of variable efficacy. These groups, intended for purposes of disease control, are sometimes seen as "detectives" by patients and cooperation by the patient with such agencies may be less than complete. The patient should always be informed that the major STDs are reportable and that the health department will be notified when a diagnosis is confirmed. Patient education should encourage cooperation with disease control officials.

In all instances, the patient must be made aware of the potential impact on community health if disease is needlessly allowed to spread. Then, even if the patient does not cooperate fully with control officers, personal contact notification by the patient may occur which, in at least one circumstance, is more effective in interrupting the spread of disease than formal notification by the health department: The patient may honestly not know names of contacts, but may be able to recognize and inform them upon next seeing them. It should be stressed that the author's comments are directed at practitioners seeing patients in the private office setting, some or perhaps most of whom are known to him from previous care. This less formal mode of contact tracing should never be relied upon in the setting of the public clinic.

Finally, identified sexual contacts should be treated as infected because of the high rate of disease in them, whether symptomatic or not. The review of rectal gonorrhea cited before included 318 patients who had been receptive participants in anal intercourse with an infected sex partner. Of those, 155 (49%) had positive rectal cultures; only 87 (27%) admitted to rectal symptoms.<sup>7</sup>

## Summary

The clinician dealing with an active general practice

1.5 grams as a loading dose followed by 0.5 grams four times a day over 4-5 days to a total dose of 9.0 to 10.0 grams.

\*Spectinomycin is the drug of choice for patients infected with the relatively rare penicillinase (beta-lactamase)-producing *N. gonorrhoeae*.<sup>21</sup>

will be evaluating patients for potential sexually transmitted disease. He must approach individuals undergoing evaluation in such a manner that appropriate questions will be asked, appropriate studies will be undertaken, and the correct diagnosis will be reached. He must be aware of the nature of varying sexual relationships and of the many STDs. If confidence and trust are fostered by the manner in which he evaluates his patients and if patients are fully educated and involved in the care process, infected individuals may be more effectively removed from the contagion pool, thereby reducing the chances of disease spread.

#### References

1. Holmes KK: Syphilis. In: *Harrison's Principles of Internal Medicine* 9th edition, pp 716-726; Isselbacher KJ, Adams RD, Braunwald E, Petersdorf RG, Wilson JD, (eds). McGraw-Hill Book Company, New York, c. 1980.
2. Henderson RH: Improving sexually transmitted disease health services for gays; a national prospective. *Sex Transm Dis* 4:58-62, 1977.
3. Dritz SK: Medical aspects of homosexuality. *N Engl J Med* 302:463-464, 1980. Editorial.
4. Goldman B: Profile of the gay STD patient. Presented at the 105th annual meeting of the American Public Health Association, Washington, D.C., October 30-November 3, 1977. Cited in: Dritz SK: Medical aspects of homosexuality. *N Engl J Med* 302:463-464, 1980. Editorial.
5. Owen WF Jr: Sexually transmitted diseases and traumatic problems in homosexual men. *Ann Intern Med* 92:805-808, 1980.
6. Webster B: Venereal disease control in the United States of America. *Br J Vener Dis* 46:406-411, 1970.
7. Lebedeff DA, Hochman EB: Rectal gonorrhea in men: Diagnosis and treatment. *Ann Intern Med* 92:463-466, 1980.
8. Bhattacharyya MN, Jephcott AE: Diagnosis of gonorrhoea in women: Role of the rectal sample. *Br J Vener Dis* 50:109-112, 1974.
9. Deheragoda P: Diagnosis of rectal gonorrhoea by blind anorectal swabs compared with direct vision swabs taken via a proctoscope. *Br J Vener Dis* 53:311-313, 1977.
10. Fiumara NJ: The treatment of gonococcal proctitis: An evaluation of 173 patients treated with 4g of spectinomycin. *JAMA* 239:735-737, 1978.
11. Pariser H, Marino AF: Gonorrhea — frequently unrecognized reservoirs. *South Med J* 63:198-201, 1970.
12. Harnisch JP, Wiesner PJ, Holmes KK: Clinical epidemiology of VD: The role of the homosexual. *Cutis* 9:221-224, 1972.
13. Merino HI, Richards JB: An innovative program of venereal disease case finding, treatment, and education for a population of gay men. *Sex Transm Dis* 4:50-52, 1977.
14. Sohn N, Robilotti JG: The gay bowel syndrome: A review of colonic and rectal conditions in 200 male homosexuals. *Am J Gastroenterol* 67:478-484, 1977.
15. Klein EJ, Fisher LS, Chow AW, Guze LB: Anorectal gonococcal infection. *Ann Intern Med* 86:340-346, 1977.
16. Sands M: Treatment of anorectal gonorrhea infections in men. *JAMA* 243:1143-1144, 1980.
17. DiCaprio JM, Reynolds J, Frank G, Carbone J, Nishimura R: Ampicillin therapy for pharyngeal gonorrhea. *JAMA* 239:1631-1633, 1978.
18. Schroeter AL, Turner RH, Lucas JB, Brown WJ: Therapy of incubating syphilis: Effectiveness of gonorrhea treatment. *JAMA* 218:711-713, 1971.
19. Wiesner PJ, Tronca E, Bonin P, Pedersen AHB, Holmes KK: Clinical spectrum of pharyngeal gonococcal infection. *N Engl J Med* 288:181-185, 1973.
20. Karney WW, Pedersen AHB, Nelson M, Adams H, Pfeifer RT, Holmes KK: Spectinomycin versus tetracycline for the treatment of gonorrhea. *N Engl J Med* 296:889-894, 1977.
21. U.S. Department of Health, Education and Welfare, Public Health Service, Center for Disease Control: Gonorrhea: Center for Disease Control recommended treatment schedules, 1979. *Ann Intern Med* 90:809-811, 1979.



ARMA

#### President

John T. Clymer, M.D.

#### President-Elect

Clyde W. Kurtz, M.D.

#### Vice President

John E. Oakley, M.D.

#### Secretary

Earl J. Baker, M.D.

#### Treasurer

Neopito L. Robles, M.D.

#### Executive Director

Bruce E. Robinson

#### Publishing Committee

Marshall B. Block, M.D., Chairman

Burnell R. Brown, M.D.

C. Herbert Fredell, M.D.

Benjamin K. Harris, M.D.

Jonathan M. Levy, M.D.

William B. McGrath, M.D.





## Student and Faculty Communications

A mood of collegiality is well recognized as important in professional education. This attitude is frequently not achievable because of the lack of communication between student and faculty. Non-communication is always undesirable. This is particularly so in professional schools where peer relationships follow the apprenticeship mode of teaching and faculty role modeling is a well recognized educational principle.

Faculty need feedback from each other on the educational process. This feedback must concern teaching effectiveness, curriculum content and interrelationships among courses. Students need frequent feedback from faculty about their performance. Students also need a psychosocial support system to help with problems of academic difficulty and with career and graduate training choices. These needs prompt the development of advising and personal counseling systems to serve students during the often stressful medical educational process.

Many methods of communication have been devised and attempted in medical schools. None is completely successful. At the University of Arizona College of Medicine a number of mechanisms have been established to supplement the usual advising systems. These are both informal and semi-formal in character. On an informal basis, the dean and the associate deans maintain an open door policy. Students are given first priority for appointments and indeed are seen virtually instantly in any emergency situation. To enhance the opportunity for contact, the Dean and the Associate Dean for Student Affairs have weekly brown bag lunch sessions in the student teaching area. No agenda is set and students are invited to raise any issues for unstructured inquiry and discussion. These sessions occur on separate days and the visits with the Dean and Associate Dean generally prompt separate kinds of discussions.

More formally, on an approximately bimonthly basis, the freshman and sophomore classes each have student-faculty coffee hours scheduled into the curriculum. Those faculty teaching at that particular time are encouraged to join the students in this informal session. The occasions are well attended by both

students and teaching faculty.

In the multidiscipline laboratory structure of the College of Medicine, students are divided into established groups of sixteen. Each laboratory group is assigned two faculty leaders, one clinician and one basic scientist. On a regular basis these faculty meet with the laboratory group. The faculty chosen for these assignments are selected widely from the College and often are not teaching in the freshman and sophomore years. The students are invited to bring all manners of complaints, critiques and suggestions to the group. The faculty function to facilitate change where needed, to investigate problems and otherwise to meet the perceived needs posed by the students. Frequently these faculty become advocates for particular student issues.

Since the 1960's student governments have become common. Arizona too has a student government process. Unlike some colleges, however, the Dean's Staff meet regularly with this government. They are invited to bring issues to the students as well as receive specific problems from them. A small budget is given the student government which can be used to enhance the student support system in any way the student government finds useful. Travel to student organization meetings, funds to present student-related research papers at meetings, and special trips to meetings to bring back information of value to the student body are common uses of this money. Through the student government, consultations with outside agencies such as accrediting agencies is facilitated.

While it is difficult to measure the impact of these efforts, it would appear that at the University of Arizona we have a very high level of morale, a very low attrition rate, and a strong feeling of co-partnership. We will continue to look for ways to enhance communication and trust that students and faculty can always see themselves in a collegiate relationship.

Louis J. Kettel, M.D.  
Dean

Andrew M. Goldner, Ph.D.  
Associate Dean for Student Affairs

Marilyn Heins, M.D.  
Associate Dean for Academic Affairs

## Auxiliary Highlights

Facets of Communication is the theme of this year's ArMA Auxiliary Convention, to be held May 21-23 at The Pointe Resort in Phoenix. Highlighting the three-day program will be free workshops planned to help physicians and their spouses improve personal and professional communication skills, face the problem of sudden death, and live with stress.

Auxiliary activities begin at 9:30 Thursday morning, May 21, when President Joyce Newman calls the annual meeting to order. It is open to all Auxiliary members.

Thursday afternoon, at two o'clock, Mort Enright will present one of his popular "Speaking Effectively" workshops. Enright, director of AMA's Speakers and Leadership Program, will be assisted by Auxilian Connie Wry.

Friday morning, at 8:30, you'll have to choose between a workshop on "Doctor-Patient Communication," conducted by Enright and Phoenix Communication specialist Marty Squire, and a session on "Parent-Teenager Communication" led by Phoenix Psychiatrist Robert Cotter and his wife, Sharon Cotter, M.S.W. Later, at 10:20 a.m., two more workshops will be offered: "Persuasive Communication and Listening Skills", with Enright and Squire; "Communication and Intimacy in Marriage", led by Dr. Charles Kerr, a Tucson psychiatrist.

The Saturday morning workshops begin at 8:45 when Anthony Mitten, an attorney and the executive director of the Maricopa County Medical Society, and Psychologist Celia Halas discuss "Sudden Death of Your Physician-Spouse — Now What?" Then at 10:45, Clinical Psychologist Duane Halloran, director of the Interfaith Counseling Service Northwest, and Doscia Carlson, Ph.D., director of the Beatitudes Center for Developing Older Adult Resources, will discuss "Living With Stress" and demonstrate biofeedback.

As always, there'll be time at convention to conduct Auxiliary business, meet at the installation luncheon Friday with friends, take part in a tennis tournament Thursday evening and a six-mile Fun Run early Friday morning. Receptions and dinners with ArMA are scheduled for Friday and Saturday nights.

The Arts and Craft Show, always a popular part of the convention, will be open Thursday, Friday and Saturday this year.

Jeanne Davis and Toni Stuart head the 1981 Convention Committee for the Auxiliary.

## County Communiques

**Coconino**—Welcomed new physicians and their spouses with a BBQ and square dancing, introduced "Early Start to Good Health" kits in ten elementary schools, experimented with an evening meeting and invited Dr. Lana Holstein to speak on "Sexuality"; considered the possibility of raising money by publishing a cookbook; and continued the bridge and hiking groups.

**Maricopa**—Spearheaded the "Early Start to Good Health" program; sponsored a successful public seminar on physical and sexual abuse, attended by more than 300; established another first for this Auxiliary by having a translator for deaf persons present at the workshop; expanded its Catastrophe Cottage home safety program, which is taken to the schools; and in the Tri-City area, organized an informative Teen Health Forum and videotaped it.

**Mohave**—Continued faithfully its outstanding eye-screening program for pre-schoolers; raised funds for nursing scholarships; sponsored a Health Fair April 4 at Lake Havasu City, with exhibits on drug and alcohol abuse, CPR, breast self-examination, smoking, blood pressure, etc., and involved other health-related groups in the presentations; and, concerned with parental apathy in the community about drug abuse, set up a series of meetings with parents through schools and churches.

**Pima**—Staged another of its' successful Women Aware programs for the community, with Dr. Barbara Edelstein (The Diet Doctor) as guest speaker; launched a feasibility study for The Human Adventure, a health education museum for Tucson; planned a Family Fun Day for April, carrying out the Shape Up for Life theme.

**Yavapai**—Anticipated working in the Health Fair for the Elderly; continued its support of the Blood Mobile; collected medicines and bandages for Mexican clinics and hospitals; provided a scholarship for a nursing student at Yavapai College; held a joint dinner meeting with the Bar Association Auxiliary, building allies in the community.

**Yuma**—Raised money for its nursing scholarship program with an auction and other projects; took "Early Start to Good Health" to the schools in the area; scheduled classes in CPR; planned a series of social activities for physicians' families, including a May picnic.



Arizona  
Medicine



Medical  
History

## Publications of the Arizona Territorial Medical Society

John W. Kennedy

The Territorial Society was formed in 1892 in Phoenix, Arizona. The first official publication was the *Territorial Transactions* said to have appeared 1892-1908. Few specimens are extant.

The *Transactions* carried some account of the annual meetings, program, officers and actions of the society. Upon one of two of the members was bestowed the honor of delivering an oration on a subject of their choosing. This exposition was published in the *Transactions*. With the coming of statehood a more ambitious publication was begun. The following are excerpts from these publications.

In 1912-1913 the *Arizona Medical Journal* became a reality. It was to be issued quarterly by the Arizona Medical Association; W. Warner Watkins, of Phoenix, served as editor.

*Arizona Medical Journal* issued quarterly by Arizona Medical Association, W. Warner Watkins, M.D. Editor. January 1913 (Exerpts)

In an editorial Watkins stated: "There will be one more issue of the journal. Then there will be no more unless the members of the association want it. The council decided after the last meeting to invest the money they had on hand in the publication of the journal this year, and this has been done." He went on to say, "the members wish the journal and are willing to pay the additional amount which the subscription will call for, they are asked to indicate their desire on the post cards sent to them. The subscription will not be less than one dollar, not more than two. (The cost of printing and distribution has plagued the Association to this day.)"

*Arizona Medical Journal*, January 1913

Malpractice suits and medical defense — There was a discussion about the desirability of the state association establishing a Medical Defense Fund. About twenty-two states had established such a fund. "These associations have been corresponded with and are enthusiastic in their statements that the plan furnishes the best and safe insurance against damages."

### Editor

Marshall B. Block, M.D.

### Associate Editors

Kenneth Desser, M.D.  
C. Herbert Fredell, M.D.  
Warren Gorman, M.D.

### Editorial Board

Thomas E. Blittker, M.D.  
John R. Green, M.D.  
John W. Kennedy, M.D.  
William B. McGrath, M.D.  
Arthur R. Nelson, M.D.  
Charles Nugent, M.D.  
Eric Prosnitz, M.D.  
Sydney Salmon, M.D.  
Lawrence Stern, M.D.

### Managing Editor

Bruce E. Robinson

### Editorial Assistant

Joan M. Bruner



The essentials of the plan were enumerated:

"1. Every member in good standing is defended by the best legal talent available when he is sued for civil malpractice for work performed during the period of his membership.

"2. The lawyer is retained by the association and defends every suit brought against members.

"3. Any suit brought is taken over by the Medical Defense Committee of the association who take it to their lawyer and he defends it.

"4. The member pays an insignificant sum each year."

There was a further review of the experience in other states and the general feeling was that a high percentage of the suits were dropped when it was found that they would be seriously defended.

"It was proposed that two dollars be assessed each member which will come under the charge of the committee on medical defense and this was to be proposed at the next meeting." Pages 50-52

Then there was another report on the relationship between the health officers of the city and county to report on topics discussed at the conferences of County and City Health Officers of Arizona and Phoenix. May 10, 1912

The necessity for vital statistics, the sanitation of towns and camps, the duties of the City Health Officer in relation to the collection of garbage and the mild supplies, especially. Page 68-74.

#### County Society News:

Greenlee County reported on a meeting of the County Medical Society held in Morenci, November 18, 1912, at which time Dr. Goodrich and Dr. Tuthill presented some clinical cases (both Dr. Tuthill and Dr. Goodrich subsequently moved and practiced in Phoenix after WWI). Page 76.

The Maricopa County Society met December 7, 1912 at the Sisters Hospital lecture room and Dr. Willard Smith was elected President.

After a spirited discussion extending over several weeks the following resolutions were adopted by the Maricopa County Medical Society expressing their attitude toward the plan to educate the public on the importance of eugenics. This is apparently predicted on, in making this endorsement, the Society wishes to call attention to well known facts, that the increase in crime, vice and degeneracy depends, to a large extent, upon existence of a disease or mental defects in the parents and the inheritance of the disease and defects in children." Page 78 (*Well there would be a lot of disagreement with that now, I presume, especially with the permissive society that we now have*).

#### Arizona Medical Journal April 1913 Vol. No. IV

The editor Warner Watkins, wrote on

the selection of the president of the Arizona Medical Association. "To award the Presidency of this Association, the highest gift in the power of the profession of the State, to some town merely as a reward for entertaining us, or to use this honor as a sop to the pride of some town, or as a salve for some fancied injury, is an unjustifiable prostitution of that office."

"Nor is it any more sensible to think that we have to rotate this office from town to town, or county to county for the purpose of distributing honor equally." (*If Warner thought it he wrote it or said it, no equivocation*).

Flies were a menace, there was a long discussion about the disease they probably helped to spread and they published a "a suggested anti-fly ordinance", "to protect the public health against disease and poison carried by the flies." Page 44.

A treatise, "Malta-fever, with a preliminary report on cases occurring in Arizona" by C. E. Yount, M.D. and R. N. Looney, M.D. of Prescott, Arizona, gave a short history of the disease. The history of "Malta-fever" is intimately associated with the scientific progress of the Medical Corps of the British Army since the occupation of Gibraltar, Malta and other Mediterranean post by that nation.

In 1905 Capt. F. C. Craig, M.C. U.S. Army made what is probably the first report of a case of Malta-fever originating in the United States. This case was a nurse in one of the Washington, D. C. hospitals who was thought to have contracted the disease by caring for infected soldiers who had become infected in the Phillipine Islands and in the same paper he called attention to the usefulness of the Widal test.

It was nearly six years later before First Lt. Thomas L. Ferenbaugh, Medical Corps, U. S. Army, who was stationed with troops at Del Rio, Texas reported five cases of Malta-fever, among those engaged in the goat industry in the Pecos River country.

In February 1912, Dr. E. S. Godfrey, Jr., then Territorial Superintendent of Health, made inquiries concerning the existence of Malta-fever in our section of Arizona. These inquiries were sent out at the suggestion of Dr. Hugh A. Brown of Washington, D.C. who believed that since Arizona was credited by the Census Bureau in 1910 with over two hundred forty thousand goats, Malta-fever might be expected to exist there as well as in Texas. The writer recalled having treated some probable cases of Malta-fever during the summer of 1911, among people engaged in the goat industry, but they did not make a diagnosis. Subsequently, they did encounter some cases; and reported three among individuals who were goat herders or

worked with goats near Wagoner in Yavapai County. (*So these are the first documented proven cases of Malta-fever or undulant fever in Arizona.*) Page 18-27.

#### Arizona Journal Vol. II 1914 No. 1

Under personals, page 27, Dr. R. F. Palmer of Mesa had announced the opening of a Medical and Surgical Hospital in that town. (Further on is an advertisement. It is called the Southside Hospital and Medical Institute, a private surgical and maternity hospital fully equipped and surgically clean. Rates, including nurses, forty dollars a week; normal confinement cases for fifteen days one hundred dollars. It had a liquid air apparatus for removal of warts, moles and birthmarks, and epithelomata, R. F. Palmer, M.D. Mesa, Arizona.)

Another personal stated "The Phoenix Hospital has recently been organized. Several local physicians of the city are interested in the institution and it promises to be permanent. It is located on North Third Avenue and has a capacity of ten or twelve patients." Page 27. (*What was the fate of this hospital?*)

Dr. D. F. Harbridge of Philadelphia had formed a partnership with Dr. Ancil Martin of Phoenix in the ear and eye specialty. (*Martin was probably the first such specialist to arrive in the Territory*).

The twenty-second annual meeting of the Association was held in Globe beginning May 20. Amongst other discussion was, "The President then declared a motion in order to consider a report of the committee on Medical Defense in detail." After a proper motion the President called for a reading of the proposed amendments and they were read. (*It doesn't specify exactly what these amendments were, but there was some difficulty initially they wanted to assess each member five dollars, this failed so they had to reduce it to four dollars. However, the Medical Defense plan was continued*). Page 34.

The committee on necrology reported some peculiar type deaths among physicians. A Dr. Nyberg of Maricopa County, a young man of talent and promise died last fall of pulmonary hemorrhage following a kick from a gun while hunting. Dr. Harry F. Sloane was killed in a run-away accident while pursuing his daily duties at Miami, Arizona. Page 37.

It was reported that the total membership of the ten component county societies was one hundred fifty-five members.

In a report by the editor of the *Arizona Medical Journal* he noted that, "Following the decision of the Council at the last annual session to discontinue the arrangement with the *Southern California Practitioner* and their subsequent decision to use funds on hand to publish a journal for this association for one year and their election of the Secretary—Editor, four numbers of the journal were issued." It



was noted that four issues of the journal had cost the Association \$456.87, and he recommended that the journal be continued on the basis of a subscription journal carrying advertisements and that the annual dues be raised one dollar to help defray this expense, that the journal be published each quarter, that the offices of secretary and editor be separated. This apparently was accepted by the Association. Page 47-48.

As mentioned there was an advertisement for the new Southside Hospital and Medical Institute in Mesa and there was a full page advertisement for Clinical Diagnosis, St. Luke's Home Laboratory, Phoenix, Arizona. They stated, "We are the first and at present the only thoroughly equipped Clinical Laboratory in Arizona, our work comes from all over the State, from Flagstaff to Bisbee, from Yuma to Morenci, watch for our monthly bulletin." The laboratory was under the charge of W. Warner Watkins, M.D.

#### **Arizona Medical Journal Vol. II 1914**

An editorial complimented the *Arizona Republican*, published in Phoenix, on the policy that they would no longer accept advertisements for quack remedies or from quacks themselves. It continued, "It is a delight to be able to read a daily newspaper without being insulted on every page by ads of Peruna, Chi-Chester Pills, Pinex, Ealy's Cocaine Balm, Lydia Pinkham, Hostetter's Booze, etc."

Under news items it was noted that Dr. Watkins had resigned his work as resident physician at St. Luke's Home, Phoenix and had moved his laboratory and x-ray equipment to the third floor of the Goodrich Building in Phoenix where he devoted himself to laboratory and x-ray diagnoses.

Dr. H. J. James of Ray had accepted the position as resident physician at St. Luke's Home. Page 16.

Yavapai County news, by Dr. C. E. Yount of Prescott, reported on the postgraduate work of the County Society. The course began on January 6 and, "... we meet each Tuesday night." There was one paper on "Toxicology of strychnine with a report of a case" by Dr. Yount. Dr. Flinn presented a paper on "Artificial pneumothorax, nitrogen method." "Artificial pneumothorax in pulmonary tuberculosis" was presented by W. Warner Watkins. After a discussion on the type of case that might best respond, he made a point of the fact there was no use of overdoing the amount of air or gas, in this case he was using nitrogen. "For all you do is extravasate the gas into the soft tissues of the neck and chest." Page 18-25

Dr. Flinn made a plea for emphasis on bed rest, he was a great "bedpan rest" man.

#### **From Over the State**

Under news from *Over the State* it was noted that Dr. L. L. Miner had accepted the medical charge of a Copper Queen Property in Mexico and had left Bisbee. Without disparagement to anyone, Dr. Miner was perhaps the most efficient Health Officer in this State. His efforts to clean up the city of Bisbee were unusually successful and this inspired some unusual difficulties.

The *Arizona Medical Journal* was published on schedule all during 1915 with papers of local interest. A curious paper was published by Dr. Ross Moore, Associate Professor of Nervous and Mental Disease, University of California at Los Angeles, on "Trifacial neuralgia." He claimed successful treatment of this condition without major surgery based on his belief that intestinal poisoning played a very important part in the etiology of this disease. He gave a very specific regime for the use of Blue Mass, or compound cathartics, followed by Belladonna or Atropine, castor oil — ad infinitum. (*The feeling that intestinal toxins caused disease persisted even during my early days in medicine during the thirties.*)

#### **Volume III December 1915 No. 12**

*Arizona Medical Journal* reported the second annual meeting of the Medical and Surgical Association of the Southwest. It was held in El Paso in December. It stated that the organization was an outgrowth of the late Association of Railway Surgeons of the Southwest, which was purely surgical. Then he listed those who registered from Arizona and there were a considerable number. Warner Watkins of Phoenix was elected the first Vice-President and Dr. John E. Bacon of Miami, Arizona a trustee of this new organization. Page 13 December 1915

#### **January 1915, Volume II, No. 1**

In the January 1915, Volume II, No. 1 of the *Arizona Medical Journal* there was an editorial asking again that a plan for Medical Defense be inaugurated. There was a comment on a peculiar decision of the State Supreme Court upholding the court practices of Arizona, which said when a patient brought a suit for personal injury, seeking to recover damages, none of the physicians or surgeons who attended him at the time of the injury or surgery were permitted to testify against the contentions of said plaintiff. For example, an eye is injured and becomes inflamed because of the presence of syphilis, proven either by test or through the influence of treatment, or a leg is broken and fails to heal owing to a syphilitic infection present before the accident. The plaintiff was allowed to testify regarding the injury but neither the physicians attending him, the specialist who examined him, nor the hospital records showing what the trouble was, or the progress of his illness could be offered in

court in opposition to the plaintiff's contentions.

It continued, "It appears that the only protection for the medical men who are involved in the treatment of these cases will be to have such an organization and such a complete harmony of interest that no medical testimony inimical to the interests of the doctors treating of the case can be obtained in this State. If our system of Medical Defense is based on this it will be of real value." (*It started out by saying that doctors who treat industrial cases or injury cases were especially at the mercy of this sort of a suit.*) Page 25.

#### **February 1915, Volume II No. 2**

It was noted that "Dr. John B. Murphy of Chicago is visiting at Castle Hot Springs." (*As of now, 1981, this is property of the Arizona State University in Tempe and is reserved for the staff thereof. You cannot set your foot on it as a private citizen.*) Page 20.

#### **The Arizona Medical Journal, Volume III, March 1915 No. 3**

This issue is devoted, almost completely, to the proposed Medical Defense plan of the Arizona Medical Association.

The first reference on the subject of Medical Defense in the Arizona Medical Association is found in the minutes of the Los Angeles meeting June 1911. The secretary of the association brought this to attention at the request of the AMA. And in speaking on the question he expressed the opinion that organization and loyalty in the profession were the best means of Medical Defense and if the members of the profession of the different counties were thoroughly organized and would cultivate a proper spirit of loyalty with one another, no other Medical Defense would be necessary. But, Palmer of Mesa opposed this idea and advocated adopting some plan of Medical Defense similar to that adopted by other state associations. Dr. Bacon of Miami emphasized that the tendency of foreign labor was to institute suits for damages. He was of the opinion that the association was not yet in a position to undertake any plan of defense. He moved, and it was seconded by Palmer of Mesa, that the President appoint a committee to inquire about what is being done in other states and the President appointed Bacon of Miami, Brown of Kelvin and Yount of Prescott.

The next report is found in the minutes of the Bisbee meeting, May 1912 and stated, "report of the special committee on Medical Defense was again brought up for discussion. The opinion of those discussing the question was that the time was not opportune for acting and it was tabled."

At a meeting in Globe, April 1913 a special committee on Medical Defense presented a report. The entire report



gave the plans of other states and their advantages. They recommended that a plan which was active, successful and in operation in other states be inaugurated. The report of the committee, with the amendments to the Bylaws, was carried by an affirmative vote of ten to four in the House of Delegates, but the motion to increase the dues two dollars a year to cover Medical Defense lost. Consequently, Medical Defense could not become operative until the House of Delegates provided the extra assessment.

During the Tucson meeting in April 1914 a permanent committee was elected according to amended bylaws. They were Francis E. Shine, John E. Bacon and C. E. Yount. A detailed discussion on the proposed Medical Defense plan and those of other states was compiled by the Association's secretary, Dr. Yount. It was reviewed by the committee of Bacon, Shine and Young. Still, there was objection to the plan and it was yet to be accepted and put into force. (*Still as a historical review of this plan for medical defense, this number of the Journal is indeed a prize.*)

#### **Volume III, April 1915, No. 4, Arizona Journal**

Under *Maricopa County News*, during the April fifth meeting the following resolutions were adopted. "Whereas from time to time there appeared in the columns of the local press highly colored reports of the Surgical and Medical services performed by members of the County Society and whereas such publicity was contrary to the code of ethics recognized by the best members of the Medical Profession, therefore be it resolved that it is the desire of the Maricopa County Medical Society that the names of its members be omitted from all accounts of accidents, illness and surgical operations published in the newspapers of Maricopa. Whereas the medical men of this community are frequently accused of accepting commissions from undertakers, be it resolved that the County Society announces that such a practice is contrary to the ethics of the Medical Profession and that anyone convicted of violation of the ethics of his profession will upon proof thereof be expelled from the society." (*Ah! That such swift action was in vogue today*) Page 16.

#### **May 1915 Volume III No. 5, of the Arizona Medical Journal**

Frontier Days in Prescott were commented upon, and it stated that Prescott conceived the idea in 1913 by furnishing programs on the best and most educational features of the ranch life in the West. It was known as Frontier Days and it said that during the meeting of the Arizona Medical Association at Prescott that summer physicians in attendance would be able to take a trip

through the Frontier Days grounds and the delegates may attend the programs of Frontier Days, July 3, 4, and 5. This is something for the rodeo buffs and indicates that they started their rodeo programs up there in 1914. (*I am sure as of now, they push it back further than that*). Page 14  
**Volume II, October 15, No. 10. Arizona Medical Journal**

Under *News Items* it was stated, "Dr. Marian Neff formerly of Phoenix has returned to that city where she will specialize in nervous diseases." Page 11. (Doctor Neff may have been the first psychiatrist in Phoenix.)

The regular meeting of the Maricopa County Medical Society study class was changed from Monday to Saturday evening and the monthly meeting of the Society also occurred on Saturday night and it was held at the lecture room of the Sisters' Hospital.

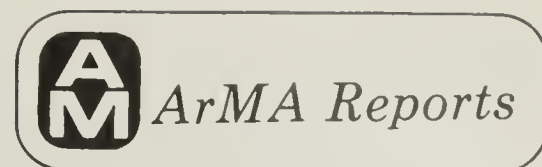
#### **Volume IV, March 1916, No. 2, Arizona Medical Journal**

It was announced that, "Watkins had resigned as editor and the new editor was Allen H. Williams, M.D. of Phoenix. The *Arizona Medical Journal* was started in 1912 and now in its fourth year. It has not been widely read but filled the purpose. There is now a plan whereby this journal will be amalgamated with the *New Mexico Journal* and the *El Paso County Bulletin*. Thus it is believed that we can have a medical journal of Southwest of which we can all be proud. It looks as though this may be carried out soon, it has already been approved by the State Society."

There was one important article in this issue titled "Arizona State Laboratory" by Charles Messerve, B.S., Ph.D., Director. The Laboratory was established by the State Pure Food Law, and located in Tucson. The law was a pure food law and nothing else. He mentioned that there was extensive co-operation with the milk producers of this State and examination of many samples of milk and although there was no tabulation of the number of tests done, it would appear that was the main thrust of the laboratory at the time.

On page fifteen of that issue there was an open letter by a group of nationally known physicians soliciting monies to be sent to help the surgeons and physicians and dentists of France. (*This was before our entry into World War I*).

To be continued



The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

#### **MEDICAL ECONOMICS COMMITTEE**

Meeting of the Medical Economics Committee of the Arizona Medical Association held Wednesday, January 21, 1981, at 810 West Bethany Home Road, Phoenix, Arizona, convened at 6:30 p.m., Clyde W. Kurtz, M.D., Chairman, presiding.

##### **Health Insurance Coverage - Mental Health**

Thomas E. Bittker, M.D. presented recommendations of the Physician Rehabilitation Committee concerning the problems of alcoholism and mental health insurance coverage as was referred by the Board of Directors. The actions of the Physician Rehabilitation Committee are as follows:

*It was moved and carried to recommend to the Board of Directors of ArMA that the Association adopt, as its position relative to mental health insurance coverage, the following:*

*"The Arizona Medical Association recognizes that alcoholism, drug abuse and emotional disorders represent significant threats to the health of physicians and their families. These are all treatable problems given the availability of early intervention and comprehensive medical treatment. The Association urges that all physicians have available to them health insurance policies that facilitate the treatment of these disorders. Although health insurance may include reasonable deductibles charged for treatment of these disorders should be non-discriminatory — no greater than those charged for other medical conditions.*

*The Association recommends further that any health insurance policies offered by the Association or its constituent county societies provide comprehensive coverage for the treatment of alcoholism, drug abuse and emotional disorders for physicians and their families. Although specific insurance policy guidelines should be determined by the purchasing group, a model policy would include coverage up to 45 outpatient visits per year and 30 inpatient days per year, at a co-insurance of no greater than 20% for the treatment of these disorders."*

It was noted that the Arizona Psychiatric Society and the Maricopa County Medical Society endorsed the



recommendations of the Physician Rehabilitation Committee.

*It was moved and carried to recommend to the Board of Directors that the Arizona Medical Association support the principle that any health insurance policies offered through the Association or the constituent county medical society provide coverage for the treatment of emotional disorders and substance abuse for physicians and their families and further that a model insurance policy would include coverage of 30 in-patient days per year and 20 out-patient visits per year at a co-insurance of no greater than 20% for the treatment of these disorders.*

#### **Industrial Commission Activities**

Dr. Kurtz presented to the committee the written presentation to ICA of this past year as well as the ICA staff analysis and recommendation concerning physician fees for 1980-81. Also Dr. Kurtz informed the committee that a survey of the county medical societies and specialty societies was made in September with a follow-up in late December to determine any problem areas, unusual cost factors and new technical advances which may be contributed to industrially injured patients. It was noted that several societies had responded to the inquiry. It was determined to receive this material for information only at this time, delaying discussions on the ICA until a later date.

#### **New Services for ArMA Members**

The Executive Committee referred that portion of legal counsel's letter of November 13, 1980, relating to new services for ArMA members to the Medical Economics Committee for consideration. As a result of counsel's consideration in this matter, Dr. Kurtz, presented a questionnaire that might be mailed to the membership concerning various activities the association could become involved in. It was determined that a survey of interest should be developed which would include the following:

1. Further development and expansion of ArMA's Insurance Programs (life, disability, overhead office expense, etc.)
2. Further development of workshops /programs on "office management" for physicians and their office personnel.
3. Develop seminars on Financial & Estate Planning for Physicians.
4. Develop centralized Consultation & Educational Resources Library of audio, visual tapes for members use.
5. Develop computer capability for billing services for member physicians.
6. Develop capability of in-house physicians management consulting team.

7. Expand present printing services to include most physician office needs, i.e., stationary, medical examination forms, public-educational handouts.

8. Develop technical resource & service ability for physicians to utilize and develop their own patient-educational material (cameras, records, etc.)

9. Develop capability of total economic resource center for state physicians (i.e., fee structure, mode of delivery service, income, work hours, retirement plans, etc.)

10. Develop a credit union which would utilize lower than usual rates.

11. Further develop sponsorship of CME courses.

12. Develop whether there is interest in a collection agency.

#### **Discounts for ArMA Members from MICA**

Dr. Kurtz presented letter from legal counsel concerning "Possible Discounts for ArMA Members from MICA". It was noted that the insurance company which ArMA developed gives no discount consideration to ArMA's members. Legal counsel indicates in letter of December 8, 1980 that there may be a possibility that the Department of Insurance would favorably consider discounts to ArMA's membership under appropriate conditions. It was determined that this was an appropriate topic for discussion in future meetings.

#### **Video Tape Library**

The Executive Committee during meeting held November 21, 1980, referred the subject of video tape library to the Medical Economics Committee. It was determined that because Maricopa County Medical Society and its academy has set aside considerable funds to develop a video tape library to table further discussion at this time.

### **LEGISLATIVE COMMITTEE**

Meeting of the Legislative Committee of the Arizona Medical Association held January 31, 1981, at 810 Bethany Home Road, Phoenix, convened at 1:15 p.m., Richard O. Flynn, M.D., Chairman, presiding.

#### **Legislative Review**

#### **S.B. 1070 - Seizure of News Media and Other Property: Subpoenas**

Mr. Bud Jacobson briefed the committee on the history of this legislation. It would provide procedures for authorities to obtain search warrants and seize property of newsmen, doctors, lawyers, and priests. It is noted that the state bar is supportive of the bill; however, the news media is no longer concerned as federal legislation was adopted last year in their interest.

*It was moved and carried to offer general support to S.B. 1070 - Seizure of News Media and Other Property Subpoenas*

#### **S.B. 1068 - Use of Child Passenger Restraint System**

S.B. 1068 provides for mandatory use of child passenger restraint systems which meet safety standards of the U.S. Department of Transportation. This is principally the same legislation introduced by this Association the past two legislative session and supported by the Arizona Chapter, Academy of Pediatrics.

*It was moved and carried to actively support S.B. 1068 - Use of child passenger restraint system.*

#### **S.B. 1025 - Insurance Coverage For Breast Reconstructive Surgery**

Mrs. Gabriel F. deFreitas briefed the committee on S.B. 1025 which provides for mandatory insurance coverage for breast reconstructive surgery. She informed the committee that this legislation was introduced last year failing to pass when Arizona Blue Cross/Blue Shield determined to allow coverage for this surgery. It is noted however, that there are still some companies which disallow coverage for breast reconstruction following a mastectomy.

*It was moved and carried to offer general support to S.B. 1025 - Insurance Coverage for Breast Reconstructive Surgery.*

#### **HCR 2002 - Right to Life; Constitutional Convention; Amendment to U.S. Constitution**

Richard O. Flynn, M.D., briefed the committee on HCR 2002 which would request congress to call a constitutional convention, proposing an amendment guaranteeing the right to life of the unborn.

*It was moved and carried to receive HCR 2002 for information only.*

#### **S.B. 1011 - Public Health; Authorized Local Agency**

The committee was informed that the intent of S.B. 1011 is to freeze all certificate of need processing in Maricopa, Gila, and Pinal counties until last year's hospital construction act is fully implemented. The Health System Agency has not complied with the new state law due to difficulties in reorganization.

*It was moved and carried to receive S.B. 1011 for information only.*

#### **S.B. 1162 - Medical Alert Code - Drivers License**

Letter was received from the Scottsdale City Managers office concerning the use of a medical alert code on Arizona drivers licenses. It is noted that the Scottsdale City Council enthusiastically supports the proposal to identify



medical conditions in case of emergencies.

*It was moved and carried to receive S.B. 1162 for information only.*

#### **H.B. 2128 - Chiropractic Insurance**

This bill would prohibit the insurance companies to deny benefits to an insurer for services provided by a chiropractor.

*It was moved and carried to actively oppose H.B. 2128.*

#### **H.B. 2113 - Nurse Practitioner**

H.B. 2113 is principally the same legislation introduced last year by Representative Goudinoff and is opposed by the Nurses Association. It generally would provide for total independence for nurse practitioners from the Joint Board of Medical and Osteopathic Examiners and allow for minor surgery and prescriptions.

*It was moved and carried to offer active non support to H.B. 2113 - Nurse Practitioner*

#### **H.B. 2116 - Naturopathic Board**

H.B. 2116 - would provide for a new definition of naturopaths which, if enacted, would considerably expand the scope of practice. The Association's position paper from last year was reviewed noting that it is incumbent on naturopaths to demonstrate the changes in education and training that warrant removal of previous legislative limits on their practice. Considerable discussion ensued.

*It was moved and carried to actively oppose H.B. 2116 - Expanding the scope of naturopathy. And further to refer the Associations position papers concerning naturopaths and other allied health manpower to the Board of Directors for re-evaluation to insure that they are up to date.*

#### **S.B. 1052 - Commerce Department**

Mr. Barnett informed the committee that this legislation is intended to organize state licensing boards into one single department for the purpose of administrative efficiency and economy. It is the same legislation that has been introduced annually for the past ten years or so and has been opposed by the Association as well as the Board of Medical Examiners.

*It was moved and carried to actively oppose S.B. 1052 - Commerce Department*

#### **S.B. 1236 - Drug Product Identification**

S.B. 1236 requests all manufacturers and distributors of solid oral prescription drugs to place an identification mark or monogram on each capsule or tablet.

*It was moved and carried to generally support proposed legislation providing for identification of drug products.*

#### **S.B. 1073 - Deceased Persons; Medical Examiner; Powers**

Gary Barnett informed the committee

that legislation prescribing powers and duties of the county sheriff's and medical examiners has been introduced. Concern has been expressed that primary investigative powers will be placed with the sheriff's office rather than the county medical examiner regarding death occurring in health care institutions.

*It was moved and carried to offer non support to S.B. 1073 - Deceased Persons; Medical Examiner; Powers*

#### **H.B. 2161 - Ownership of Health Records**

Representative Goudinoff has re-introduced legislation which would provide that patients are the legal owners of all health records pertaining to such patient. It was determined to refer this legislation to legal counsel for opinion.

#### **H.B. 2162 - Clinical Laboratories**

H.B. 2162 would provide that clinical laboratories would examine specimens at the request of any persons being tested as well as physicians and that the results would be reported directly to them.

*It was moved and carried to actively oppose H.B. 2162 - Clinical Laboratories*

### **EXECUTIVE COMMITTEE**

The meeting of the Executive Committee of the Arizona Medical Association held at 810 W. Bethany Home Road, Phoenix, Arizona, on Friday, February 27, 1981, a quorum being present, convened at 6:45 p.m., John T. Clymer, M.D., President and Chairman, presiding.

#### **Arizona Department of Health Services**

James E. Sarn, M.D., the new Director of the Arizona Department of Health Services, reported to the committee regarding the activities of the department and briefly discussed the five main areas of concern with which the department was actively involved at the present time — 1) indigent health care, 2) hazardous waste sites, 3) community service in behavioral and maternal and child health, 4) consumer protection and 5) reorganization of the department itself.

#### **Bomex Appointments**

The committee discussed the earlier direction of the Board as it related to recommendations to the Governor for filling of existing vacancies on the Board of Medical Examiners and was advised that Dr. Reuben Acosta had, in fact, indicated that he did not wish to be reappointed. Mr. Barnett reported to the committee on his recent discussions

with the Governor's staff regarding vacancies and appointments and that, in all probability, decisions with regard to the filling of the vacancies occurring in February had already been made. Inasmuch as other vacancies would, however, be occurring in the near future, the committee determined to carry the matter over until its next meeting, at which time it would again consider making recommendations to the Governor.

#### **Building Fund Delinquencies**

The committee received a status report on building fund delinquencies presently existing and determined that the matter would be considered again by the committee during its meeting in March.

#### **Challenge to Medical Malpractice Panels**

Report on the Amicus Curiae Brief submitted on behalf of the Association and the favorable decision of the Supreme Court in the lawsuit filed by the Ellenwoods challenging the medical liability review panels. *Received*

#### **Bomex Investigations**

The committee discussed recent reports received by its members that some physicians throughout the state were complaining of what they perceived to be harassment by the Board of Medical Examiners in the investigation or questioning of medical practices. Although the committee felt it might be worthwhile to consider meeting with members of the Board of Medical Examiners to discuss some of the complaints, it was determined to await a report being prepared by the Professional Committee on like issues.

#### **Professional Liability Insurance Companies**

Recent survey of physician-owned professional liability insurance companies and discounts granted. *Received.*

#### **Request for Travel Expenses**

The committee reviewed and discussed a request from Andrew M. Goldner, Ph.D., Associate Dean at the College of Medicine at the U of A, for travel expenses for a student to attend interviews at various medical schools.

*It was moved and carried that, based upon the current budget of the Association, the request from Andrew M. Goldner, Ph.D., for travel expenses for a student to attend interviews at certain medical schools be denied but, additionally, suggestion be made to Dr. Goldner that he contact the medical schools involved to determine whether it might be feasible to schedule local interviews for this deserving student.*

#### **Regionalized Telephone Books**

The committee received and reviewed



a letter to the Arizona Corporation Commission from Stuart I. Holtzman, M.D. concerning the Commission's consideration of allowing the printing of regionalized phone books and urging a denial of the telephone company's request. The committee requested that staff attempt to obtain more complete facts on the Commission's activity in this regard, reporting back to the committee for further consideration as to any position to be taken by the Association.

#### **Appointments to AMA Committees**

Mr. Robinson informed the members that, in compliance with the Board's action on January 10, 1981 regarding recommendations for appointments to AMA committees, it had been determined that ArMA had previously recommended three of its physicians for appointment to residency review committees and, following discussion

*It was moved and carried that the Arizona Medical Association recommend the following for appointment to Councils and Committees of the American Medical Association: Edward Sattenspiel, M.D. — Residency Review Committee — Obstetrics-Gynecology; Richard D. Zonis, M.D. — Residency Review Committee — Otolaryngology; and Mac Donald Wood, M.D. — Residency Review Committee — Surgery.*

#### **Membership**

Membership status report. *Received*

#### **Long Range**

#### **Planning Workshop**

A brief discussion was held on the final preparations for the Long Range Planning Workshop to be held at the Association offices on February 28th.

#### **Discussion of Election Policy**

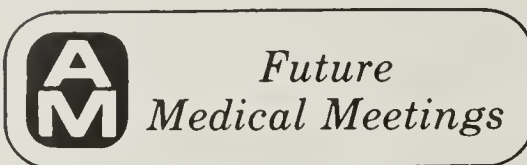
The committee was informed that, due to the recent decision to allow AMA membership to be voluntary, not all members of ArMA's House of Delegates would necessarily be AMA members but that according to the Association bylaws AMA Delegates and Alternate Delegates could only be elected by members of the AMA. Therefore, the committee determined that during the election to be held in May separate ballots would be used for voting on AMA Delegates and Alternates, which ballots would be distributed only to members of the House of Delegates who were in fact also members of the AMA.

#### **Other Business**

#### **Scientific Assembly Request**

The committee was presented with a request from the Scientific Assembly Committee on behalf of the ArMA Auxiliary for permission to allow nurses and others to attend those presentations

during the 1981 Annual Convention which were Auxiliary sponsored. The committee felt that this had always been the practice in the past and that the Association felt the Auxiliary should open its registration to whomever it felt could benefit by the programs.



The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program, (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

### **APRIL**

#### **Update: Primary Care 1981**

April 21-15, 1981., University of Arizona Health Sciences Center, Sponsor: U of A College of Medicine. Contact: Office of CME & Outreach, U of A Health Sciences Center, Tucson, AZ. Approved for 20 hours of category 1 credit.

#### **Current Treatment of the Elderly Psychiatric Patient**

April 22, 1981. Walter O. Boswell Memorial Hospital, Sun City. Sponsor: Walter O. Boswell Memorial Hospital. Contact: Office of CME, Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, AZ 85372. Approved for hour per hour category 1 credit.

#### **Fourth Annual Arizona Emergency Medicine Symposium**

April 22-24, 1981. Safari Convention Center, Scottsdale, Arizona. Sponsor: American College of Emergency Physicians, Arizona Emergency Medical Systems, Inc., The Phoenix Chapter of Emergency Department Nurses Assn. and Arizona EMT Assn. Contact: Sherry Krentz, RN., Chairman, Arizona Emergency Medicine Symposium, AEMS, 301 W. Osborn Rd., Ste 112, Phoenix, AZ 85013.

#### **Training in Structural Family Therapy Families with Adolescents**

April 24-25, 1981. Scottsdale Camelback Hospital, Scottsdale. Sponsor: Philadelphia Child Guidance Clinic & Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

#### **7th Annual Sports Medicine Symposium**

April 25, Adams-Hilton, Phoenix, Arizona. Sponsor: Arizona Medical Association. Contact: Sports Medicine Section, Arizona Medical Association, 810 W. Bethany Home Road, Phoenix, AZ 85013. Approved for 8 hours of category 1 credit.

#### **Staging of Lung Cancer**

April 27, 1981. Veteran's Administration Medical Center, Phoenix, Arizona. Sponsor and Contact: Phoenix Veteran's Administration Medical Center, Alfred Hebrunn, M.D., 7th St. & Indian School Rd. Phoenix, AZ. Approved for hour per hour category 1 credit.

#### **Vectorcardiography (An Advanced Workshop)**

April 29, 30 & May 1, 1981. Sponsor: American College of Cardiology and Good Samaritan Hospital Institute for Cardiovascular Diseases. Contact: Registration Secretary Extramural Programs Department, American College of Cardiology, 9111 Old Georgetown Rd., Bethesda, MD 20014.

### **MAY**

#### **Obstetrics & Gynecology**

May 9, 1981. U of A Health Sciences Center Tucson. Sponsor: U of A College of Medicine. Contact: Office of CME and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 6 hours of category 1 credit.

#### **Occupational Medicine**

May 9, 1981. The Pointe Resort, Phoenix Arizona. Sponsor: Memorial Hospital of Phoenix. Contact: George Scharf, M.D. Memoria Hospital of Phoenix, 1201 South 7th Ave., Phoenix, Arizona. Approved for 6 hours of category 1 credit.

#### **Recurrent Infections**

May 12, 1981. Desert Samaritan Hospital Mesa, Arizona. Sponsor: Desert Samaritan Hospital. Contact: Office of CME, Desert Samaritan Hospital, 1400 S. Dobson Rd. Mesa, AZ 85202. Approved for hour per hour category 1 credit.



SPECIFY  
**ZYLOPRIM<sup>®</sup>**  
**(allopurinol)**  
THE  
ORIGINAL  
ALLOPURINOL



Two convenient dosage forms:  
100 mg (white) and 300 mg (peach)  
Scored Tablets



Tablets imprinted with brand name to  
assist in tablet identification.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709

# 90th Annual Meeting of the Arizona Medical Association The Pointe Resort Phoenix Arizona

| MAY |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| S   | M  | T  | W  | T  | F  | S  |
|     |    |    |    |    | 1  | 2  |
| 3   | 4  | 5  | 6  | 7  | 8  | 9  |
| 10  | 11 | 12 | 13 | 14 | 15 | 16 |
| 17  | 18 | 19 | 20 | 21 | 22 | 23 |
| 24  | 25 | 26 | 27 | 28 | 29 | 30 |
| 31  |    |    |    |    |    |    |

# TAKE FIVE



**Take five days in May with ArMA.** Five days to rest, to relax, to meet your colleagues from around the state while you enjoy a balanced program of education and entertainment. Arizona Medical Association business will be conducted the first two days. Attend the meetings and let the delegates know your views. The scientific session begins Friday noon and continues through Sunday featuring a wide-ranging program of contemporary concepts in medicine and surgery plus three timely special events dealing with medical economics and national preparedness. An ACLS Provider Course, three competitive athletic events, two very special social evenings AND plenty of time to enjoy the many features of the beautiful Pointe Resort round out the program. Rates are low — only \$46/day for two.

**Get to the Point for the 90th Annual Meeting of the Arizona Medical Association. May 20-24, 1981.**



## INSTITUTE FOR HUMAN SERVICES, INC.

Drug Abuse Treatment Unit  
St. Luke's Hospital Medical Building  
421 North 18th Street, Suite 103  
Phoenix, Arizona 85006  
(602) 257-8089

*Henri A. Moyal, M.D., Medical Director • Harriette Lurie, Drug Abuse Coordinator*

- The Drug Abuse Treatment Unit provides specific care for individuals addicted to narcotics, either street drugs or major pain relieving drugs.
- The program's goals are to provide awareness and insight that facilitate psychological adjustment and allow the patients to meet personal and social responsibility and eventually to achieve a drug free state.
- Our services include psychotherapy: individual, family, marital and group. Inpatient care is available through St. Luke's Hospital facilities.
- For further information regarding the Drug Abuse Treatment Unit, please call our offices at 257-8089.

### Structural Family Therapy Series

#### Working with Single Parent Families

May 15-16, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Clinic & Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for 8 hours of category 1 credit.

#### The Critically Ill Child

May 15-16, 1981. St. Joseph's Hospital & Medical Center, Phoenix, Arizona. Sponsor: St. Joseph's Hospital & Medical Center, Pediatric Educ. Dept. Contact: Pediatric Education Department, 350 W. Thomas Road, Phoenix, AZ 85001. Approved for 12.5 hours of category 1 credit.

#### 90th Annual Meeting of the Arizona Medical Association

May 20-24, 1981. The Pointe Resort, Phoenix, Arizona. Sponsor: Arizona Medical Association. Contact: Mr. Bruce E. Robinson, Executive Director, 810 W. Bethany Home Rd., Phoenix, AZ 85013. Approved for 15 hours of category 1 credit.

#### Microvascular Surgery

May 26, 1981. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

#### Insulin Pump

May 27, 1981. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

#### American College of Physicians, Interim Meeting

May 29-31, 1981. Little America, Flagstaff, Arizona. Sponsor: American College of Physicians. Contact: Alan Gordan, M.D., 200 N. 3rd St., Phoenix, AZ 85005. Approved for hour per hour category 1 credit.

## JUNE

#### Adverse Drug Reactions in the Elderly

June 2, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor & Contact: Desert Samaritan Hospital, 1400 S. Dobson Rd., Mesa, AZ 85202. Approved for hour per hour category 1 credit.

#### Fifth Annual Southwestern Cardiovascular Symposium

June 11-13, 1981. Arizona Biltmore Resort, Phoenix, Arizona. Sponsor: St. Luke's Hospital and Medical Center. Contact: Office of CME, St. Luke's Hospital and Medical Center, 525 North 18th Street, Phoenix, AZ. Approved for 15 hours of category 1 credit.

#### Structural Family Therapy Series Blended Family

June 19-20, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Clinic and Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour category 1 credit.

#### 4th Annual Summer Pediatric Conference

June 19-21, 1981. Poco Diablo Resort, Sedona, Arizona. Sponsor: U of A College of Medicine and Arizona Pediatric Society. Contact: Office of CME & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 13 hours of category 1 credit.

## JULY

#### Sexual Dysfunction in the Pulmonary Patient

July 22, 1981. Boswell Memorial Hospital. Sponsor and Contact: Byran R. Updegraff, M.D., Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, AZ. Approved for hour per hour category 1 credit.

#### Coconino County Medical Society 17th Annual Summer Medical Seminar

July 24 & 25. Little America, Flagstaff, Arizona. Sponsor: Arizona Medical Association. Contact: Lana L. Holstein, M.D., P.O. Box 392, Flagstaff, Arizona 86002. Approved for 14 hours of category 1 credit.

## MONTHLY OR WEEKLY

#### Shrine Medics Meeting

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

#### Office Psychiatry for the Primary Provider

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

#### Counter Transference Group

Weekly, Thurs. 8-10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

#### Monthly Meeting of Tucson Radiologists

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

#### Pediatric Grand Rounds

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

#### Review of Forensic Pathology Current Case, Special Topics

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.



## ARIZONA HEART INSTITUTE

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

### Clinical Conference Cardiovascular Medicine

Third Tues., 5:15 p.m., second floor classroom

## ARIZONA STATE HOSPITAL

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

### A.S.H. Psychiatric Grand Rounds

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm., Contact: Dr. Conger & Staff

### Clinical-Pathological Conference

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

### Medical Grand Rounds

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.

## BARROW NEUROLOGICAL INSTITUTE

### Medical Education

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### Neurology Teaching Conference

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf. Room.

### Neurosurgical Morbidity Conference

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### Neuro-ophthalmology Conference

Tuesdays, 7:30 a.m. in 8th floor neurology conference room.

### Spinal Injury Conference

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conf. Rm.—a multidisciplinary review of admission by neurosurgeons, orthopedists, and rehabilitation specialists

### Neuro-ophthalmology Conference.

Weekly, 7:30 a.m., 8th floor conference Rm.

### Neuropathology of Gross Specimens Conference

Thursday, 7:30-8:30 a.m. in the Morgue.

### Neurology-Neurosurgical

Fridays, 8-9 a.m., First Floor Conference Rm.

### Neuropathology or Neuroradiology Conferences

Friday, 9 a.m., Neuropathology in Neuropathology Conference Rm., Neuroradiology in First Floor Conference Rm.

### Neurorehabilitation Conference

Tuesdays, noon, 8th Floor Conference Rm.

### Neurosurgical Journal Club

Saturdays, 9-11 a.m. in Eighth Floor Conference Rm.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Tunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED.D., Director of Education.

### Medical Department Continuing Medical Education

4th Wednesday, 12 Noon, C119. May, July, Sept. & Nov.

### Tumor Board

Last Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept, & Nov.

### Surgical Department CME

4th Friday, 7 A.M., Educ. Center Classrooms I & II. Contact: Brian Updegraff, M.D.

## CAMELBACK HOSPITAL

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr., M.D.

### Clinical Conference

3rd Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

1400 South Dobson Road, Mesa, Arizona, Contact: L.A. Rosati, M.D. Approved for category 1 credit.

### CME Programs

Weekly Tuesday, 7 p.m., Cafeteria-West End.

### Clinical Conference - Dept. of Medicine

Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch, Grande Rm.

### OB/GYN Medical Staff Conference

Weekly, Monday, 12:30-1:30 p.m. Grande Rm.

### Pediatric Case Conference

2nd. Friday, 12:30 p.m., Grande 2

## DOCTORS HOSPITAL

1747 East Thomas Road, Phoenix, Arizona 86016 Contact: Medical Staff Secretary for additional information.

### Physicians Continuing Education Program

1st Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

1400 N. Wilmont Road, Tucson, AZ 85712. Contact: Eric G. Ramsay, M.D. Approved for category 1 credit.

### Family Practice Department Meeting

1st Monday, 12 Noon, Contact: R. Grossman, M.D.

## FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA

1215 N. Beaver Street, P.O. Box 1268, Flagstaff AZ 86002. Contact: B. C. Hirschberg, M.D., CME Program Clinical Conference. Approved for category 1 credit.

### Clinical Conferences

Weekly, Tuesdays, 12:30 P.M., Tollefson Rm.

### Mortality & Morbidity Conference

Thursday, April 2, 12:30 P.M., Tollefson Rm.

## GOOD SAMARITAN HOSPITAL

1033 East McDowell Rd., Phoenix, AZ Contact: W. J. Howard, M.D. Approved for category 1 credit.

### Anatomical Path. & Cytology

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf Rm.

### Gynecological Section Conference

2nd Monday, 12:30-1:30 p.m., West Rm

### Monday Noon Conference

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### Mortality/Morbidity, Surgery Comm.

2nd Monday, 11:30-2:00 p.m., West Rm.

### Obstetrical Section Conference

1st Monday, 12:30-1:30 p.m., West Rm.

### Pulmonary Disease Grand Rounds

Weekly, 12:00-1:00 p.m., D-5 North

### Family Practice Conference

Weekly Tuesday, 12:00-1:00 p.m., Fam Practice Conf. Rm.

### Pediatric Grand Rounds

3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul Bergeson, M.D.

### PM & R Noon Inservice

2nd & 4th Tuesday, 12 Noon, R-2 Conference Rm.

### Surgical Grand Rounds

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### Clinical Cancer Forum

3rd Wednesday, 12:00-1:00 p.m., West Rm Contact: John A. Bruner, M.D.

### Combined Cardiovascular & Family Practice Conf.

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5 North.

### Learning Disabilities

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

### OBGYN Dept. Review & Statistics

Weekly, 12:30-3:00 p.m., OBGYN Conf. Rm

### Gynecological Pathology

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf Rm.

### GI Radiology Conference

1st Thursday, 12:00-1:00 p.m., F151 Radiology Conf. Rm.

### Phoenix Ultrasound Soc. Meeting.

Medical Education Building, Contact: Dr. Ben Ora

### Neurology Grand Rounds

Weekly Thursday, 9:00-10:00 a.m., D-5 North

### Tumor Treatment Planning Conf.

2nd & 4th Thursdays, 12:00-1:00 p.m., F15 Radiology

### Joint Tumor Gyn Conference

2nd Friday, 12:30-1:30 p.m., West Rm.

### Medical Grand Rounds

Weekly Friday, 8:00-9:00 a.m., West Rm.

### Neurology Conference

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

### Psychiatry Grand Rounds

Weekly Friday, 11:30-1:00 p.m., East Rm.

## KINO COMMUNITY HOSPITAL, (THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact: Eric C. Ramsay, M.D., Approved for Category 1 credit.

### Attending's Hour

5th Monday, 12:30 p.m., Contact: Goldberger, M.D.

### Infectious Disease Conference

3rd Monday, 12:30 p.m., Contact: Barr Friedman

### Ophthalmology Conference

1st Monday, 12:30 p.m., Contact: Bruce Gillers, M.D.

### Psychiatric Conference

2nd & 4th Mondays, Contact: J. Santiago M.D.

### Surgical Conference

Weekly Mondays, Contact: R. Fischer, M.D.

### Cardiology Conference

4th Tuesday, 12:30 p.m., Contact: B. Phibb M.D.



**Clinical Pharmacology Conference**  
 1st Tuesday, 12:30 p.m., Contact: M. Katz,  
 Clinical Pharm.

**Neurology Conference**  
 1st & 3rd. Tuesday, 12:30 p.m., Contact: J.  
 Laguna, M.D.

**Radiology Conference**  
 1st Tuesday, 12:30 p.m., Contact: M. Baker,  
 M.D.

**Medical Surgical Grand Rounds**  
 1st Wednesday, 12:30 p.m., Contact: Chief Medical  
 Resident

**Medical Conference**  
 1st Wednesday, 12:30 p.m., Contact: Chief Medical  
 Resident

**Cardiology Conference**  
 1st Thursday, 12:30 p.m., Contact: B. Phibbs,  
 M.D.

**Endocrine Conference**  
 1st Thursday, 12:30 p.m., Contact: E.  
 Munjack, M.D.

**OB/GYN Conference**  
 1st Thursday, 12:30 p.m., Contact: C. Kanun,  
 M.D.

**Mortality & Morbidity Conference**  
 1st Thursday, 12:30 p.m., Contact: E.  
 Munjack, M.D.

**OB/GYN Dept. Meeting**  
 1st Thursday, 2 p.m., Contact: J. Wurzel, M.D.

**OB/GYN Pathology Conference**  
 Weekly, Thursday, except 2nd, Contact: J.  
 Wurzel, M.D.

**OB/GYN Sonograph/X-ray Conference**  
 1st Thursday, 3 p.m., Contact: J. Wurzel, M.D.

**Clinical Pathology**  
 5th Thursday, 12:30 p.m., Contact: J.  
 Fleishman, M.D.

**Renal Conference**  
 1st Friday, 12:30 p.m., Contact: T. Pence,  
 M.D.

**Hematology Conference**  
 2nd & 4th Friday, Contact: S. Ketchel, M.D.

**Rheumatology Conference**  
 3rd Friday, 12:30 p.m., Contact: J.  
 Goldberger, M.D.

**Chest Conference**  
 5th Friday, 12:30 p.m., Contact: D.  
 Engelsberg, M.D.

### MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008  
**Continuing Medical Education Program**  
 Every other Wednesday, 7-8 a.m.

**Clinical Conferences**  
 2nd & 4th Wednesday, 12-1 p.m., Medical  
 Staff Lounge

### MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008.  
 Contact: Leonard Tamsky, M.D.

**Medicine Conference**  
 Daily 12-1 p.m., Contact: S. Schaffner, M.D.

**Chest Surgery Conference**  
 Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

**Hematology Conference**  
 2nd Tuesday, 1:00 p.m., Contact: Walt  
 Koppenbrink, M.D.

**OB/GYN Dept. Grand Rounds**  
 Weekly Tuesday, 12 Noon, Santa Cruz Room

**Obstetrical Problem Conference**  
 Weekly Tuesday, 7:30 a.m., Yavapai Rm.

**Orthopedic Conference**  
 Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

**Pediatric Grand Rounds**  
 2nd Tuesday, 7:30-8:30 a.m., Contact: Robert  
 Ganelin, M.D.

**Urology Discharge Planning Conference**  
 Weekly, 11:30 a.m., Station 42

**Hand Surgery Conference**  
 Weekly Wednesday, a.m., Santa Cruz Rm.

**Neurosurgery Discharge Planning**  
 Weekly Wednesday, 1:30 p.m., Station 42.

**OB/Neonatology Seminar**  
 Weekly, Wednesday, 7:30 a.m., Yavapai Rm.

**Clinical Psychiatric Conference**  
 Weekly, Wednesday, 11-12 p.m., Mental Health  
 Annex, Rm. 1346.

**Surgery Conference**  
 Weekly Wednesday, 7-8 a.m., Surgical Dept.

**Current Concepts in Medicine & Surgery**  
 1st Thursday, 1 p.m., Dr. Hospital Class Rm.,  
 Contact: Dr. Tamsky.

**Cardiology Conference**  
 Weekly Thursday, 2 p.m., Santa Cruz Rm.

**OB/GYN Resident Conference**  
 Weekly Thursday, 12 p.m., Yavapai Rm.

**GYN Endocrine Seminar**  
 1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

## SYMPOSIUM ON OCCUPATIONAL MEDICINE

Saturday, May 9, 1981

The Pointe Resort, Phoenix, Arizona

For registration information write or call:

Ms. Janice Peyak, Medical Staff Secretary  
 Phoenix Memorial Hospital  
 1201 South Seventh Avenue  
 Post Office Box 21207  
 Phoenix, Arizona 85036  
 (602) 258-5111, ext. 331

Ten esteemed specialists from medicine and industry will address the topic of occupational health care management from their specialty perspectives.

Category I CME credit approved, 6 hours.  
 American Academy of Family Physician accreditation requested.

Sponsored by the  
**Memorial Hospital Foundation**

**OB/GYN Surgical Pathology Conf.**  
Weekly Friday, 7:30 a.m., Yavapai Rm.  
**Orthopedic X-Ray Conference**  
Weekly Friday, 7:30 a.m., Santa Cruz Rm.

### PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.  
Contact: Leonard M. Lapenson, M.D.,  
Approved for category 1 credit.

#### Clinical Conferences

1st & 3rd Tuesdays, 12 noon, 5th floor  
auditorium.

#### CPC or Medical-Surgical Forum

4th Tuesday, 12 noon, 5th floor auditorium.

### PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.  
Contact: Leland L. Fairbanks, M.D.,  
Approved for category 1 credit.

#### Pediatric Grand Rounds

1st Tuesday, 7:30-8:30 a.m., Contact: D.  
Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**  
Wed. Weekly, 8:00 a.m.

#### Otolaryngology Grand Rounds

4th Wednesday, 4-5 p.m., Conference Rm. A,  
Contact: N. Wendell Tood, M.D.

#### Family Practice/Emergency Room Teaching Conference

Thursday Weekly, 7:30-8:30 p.m., Conf. Rm.  
A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

### PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:  
George Scharf, M.D. Approved for category 1  
credit.

#### Monthly Medical Education Seminar

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

#### Clinical Conferences

Weekly Tuesday, 12:30 p.m., Kiva  
Conference Rm.

#### Tumor Board Conference

Weekly Friday, 12 p.m., Kiva Conf. Rm.  
Contact: H. Kimball, M.D.

### SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251.  
Contact: W. S. Williams, M.D., Approved for  
category 1 credit.

#### Family Practice Conference

1st Monday, 12:30 p.m., Doctors' Lounge

#### Emergency Medical Services Conference

2nd Monday, 12:30 p.m., Doctors' Lounge

#### Neurology/Neurosurgery Conference

3rd Monday, 12:30 p.m., Doctors' Lounge

#### CPC Conference

4th Monday, 12:30 p.m., Doctors' Lounge

#### Pediatrics Conference

5th Monday, 12:30 p.m., Doctors' Lounge

#### Pulmonary Conference

1st Tuesday, 12:30 p.m., Doctors' Lounge

#### Cardiology Conference

2nd Tuesday, 12:30 p.m., Doctors' Lounge

#### Surgery Conference

3rd Tuesday, 12:30 p.m., Doctors' Lounge

#### Resident Grand Rounds

4th Tuesday, 12:30 p.m., Doctors' Lounge

#### Medical Subspecialties

5th Tuesday, 12:30 p.m., Doctors' Lounge

#### Urology Conference

3rd Thursday, 12:30 p.m., Doctors' Lounge

#### Tumor Conference

4th Thursday, 12:30 p.m., Doctors' Lounge

#### GI/Med/Surg/Radiology Conference

2nd Friday, 12:30 p.m., Doctors' Lounge

### ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Conta  
Gerald L. Hansbro, M.D.

#### Cardiac Conference

Weekly Monday, 12:15 p.m., Auditorium

#### Surgery Conference

1st Tuesday, 12:15 p.m., Auditorium

#### Emergency Medicine Conference

1st Wednesday, 12:15 p.m., Auditorium

#### Cardiovascular-Thoracic Record Review

3rd Wednesday, 12:15 p.m., Auditorium

#### Psychiatry Conference

3rd Thursday, 7 a.m., Auditorium

#### Combined Medical General Practi Conference

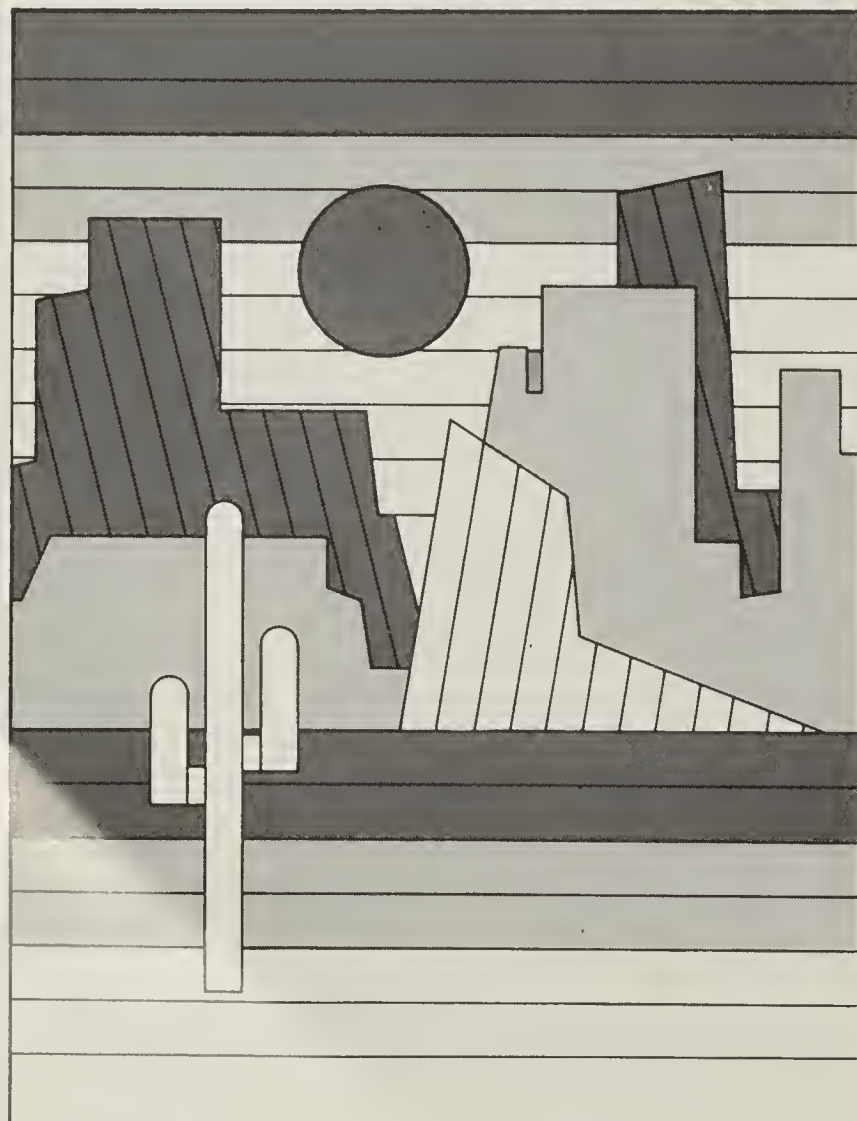
1st Friday, 12:15 p.m., Auditorium

#### Toxicology Grand Rounds

2nd Friday, 7:30 a.m., Auditorium

#### Ophthalmology Conference

1st Saturday, 8:30 a.m., Auditorium.



## Fifth Annual SOUTHWESTERN CARDIOVASCULAR SYMPOSIUM

June 11-13, 1981

at the world famous, 5-star  
Arizona Biltmore Hotel  
Phoenix, Arizona

A distinguished faculty has been selected  
to conduct the symposium sessions.  
Category 1 CME credit applied for.

sponsored by

### St. Luke's Hospital Medical Center

R. Leighton Fisk, M.D., Chairman

for additional information, write or call:

Christine Campbell, Seminar Coordinator  
St. Luke's Hospital Medical Center  
525 N. 18th Street, Phoenix, Arizona 85006  
(602) 258-7373 ext. 311

Hotel reservation deadline is May 11.



# In G.I. therapy



## Adjunctive Librax®

Each capsule contains  
5 mg chlordiazepoxide HCl  
and 2.5 mg clidinium Br

### antianxiety/antisecretory/antispasmodic

### for adjunctive therapy of duodenal ulcer\* and irritable bowel syndrome\*

## Librax®

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:

"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.

Final classification of the less-than-effective indications requires further investigation.

**Contraindications:** Glaucoma, prostatic hypertrophy, benign bladder neck obstruction; hypersensitivity to chlordiazepoxide HCl and/or clidinium Bromide.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addic-

tion-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.

As with all anticholinergics, inhibition of lactation may occur.

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug

and oral anticoagulants; causal relationship not established.

**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction; changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl; making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

ROCHE

Roche Products, Inc  
Manati, Puerto Rico 00701



# "We're together because Dr. Benson recommended home health care."

Home health care is an excellent alternative when your patients cannot fully care for themselves, yet do not need to be in a hospital or nursing home. They can enjoy the comforts of home and family while receiving the care they need, often at a cost far below that of institutional care. And you are always in full control of the plan of care.

Each year, thousands of people receive care at home from Upjohn HealthCare Services<sup>SM</sup>. We employ nurses, nurse assistants, home health aides, homemakers and companions.

We're the nation's leading private provider of home health care, with hundreds of offices throughout the United States and Canada. Many of our offices are licensed to provide services covered by Medicare.

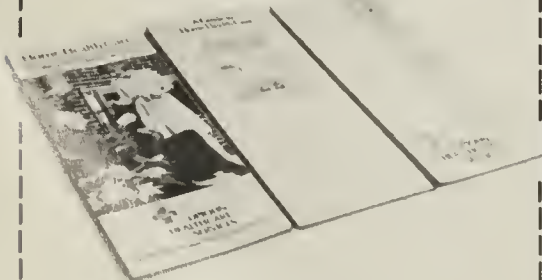
Upjohn HealthCare Services is a service program of The Upjohn Company, a name you and your patients can trust. For free home health care information packets you can give to your patients, please send us the coupon below. Or call our office nearest you, listed in the white pages of your telephone directory.



**UPJOHN  
HEALTHCARE  
SERVICES<sup>SM</sup>**

Let us help you tell your patients about home health care.

- Please ☐ send me 10 free home health care information packets  
☐ have your service director call me



Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Mail to: Upjohn HealthCare Services  
Dept. SJG  
3651 Van Rick Drive  
Kalamazoo, Michigan 49002

HM-6743 © 1981 Upjohn HealthCare Services, Inc.





## ST. MARY'S HOSPITAL & HEALTH CENTER

601 W. St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.

### Monthly Specialty Conference-Dept. of Surgery

1st Monday, 7:30 a.m., Century Rm. A.,  
Contact: Med. Staff Office.

### Grand Rounds: Medical Surgical, Family Practice, Pathology, Radiology

Weekly Thursday

### Emergency Medicine Lectures

Weekly Thursday, 8 a.m., Century Room A.

### Mental Health Update

1st Friday, 11:30-1:00 p.m., Century Rm. A.

### Cardiology Conference

Weekly Friday, 8:00-9:00 a.m., Century Rm.,  
Contact: Anthony Forte, M.D.

## ST. JOSEPH'S HOSPITAL PHOENIX

550 West Thomas Road, Phoenix, AZ 85013.  
Contact: Joseph C. White, M.D.

### OB/GYN Section Conference

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor  
Conf. Rm.

### Genetics Conference

Weekly Monday, 12:30 p.m., Pediatric  
Department.

### Pediatric Rounds

Weekly Monday, Wed. & Friday, 10:30 a.m.,  
Pediatric Department.

### Pediatric Grand Rounds

4th Tuesday, 7:30-8:30 a.m., Contact: J. Kipp  
Charlton, M.D.

### ECG Conference

Weekly Tuesday, 12:30 p.m., Pediatric  
Department.

### Medical Grand Rounds

Weekly Wednesday, 8 a.m., 1st Floor Conf.  
Room.

### Visiting Professor Formal Presentation

Weekly Thursday, 8 a.m., PIMC

### Visiting Professor Informal Presentation

Weekly Thursday, 9:30 a.m., 1st floor Conf.  
Rm.

### Visiting Professor Formal Presentation

Weekly Thursday, 12:30 p.m., PIMC

### Nephrology Conference

Weekly Fridays, 12:30 p.m., Pediatric  
Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact:  
Eric G. Ramsay, M.D. Approved for Category  
1 credit.

### Family Practice Department Meeting

3rd Tuesday, 12 p.m., Contact: Wm.  
Moteforte.

### Ophthalmology Morbidity/Mortality Conf.

4th Tuesday, 12:15 p.m., Contact: Kim  
Sowards.

### Current Concepts in Medicine

Weekly, Tuesday, 12 p.m., Auditorium.

### Hematology-Oncology Conference

Last Wednesday, 12:15-1:15 p.m., Contact: S.  
Salmon, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.

Contact: Eric G. Ramsay, M.D. Approved for  
Category 1 credit.

### Cardiology Conference

Weekly Monday, except last, 12 Noon,  
Contact: J. Fernandez, M.D.

### Dermatology Conference

4th Monday, 5:00 p.m., Contact: R. Miller,  
M.D.

### Endocrinology Conference

Last Monday, 12 p.m., Contact M. Parker,  
M.D. **Perinatal Conference**

2nd Monday, 7:30 p.m., Contact: J. Lohman,  
M.D.

### Chest Conference

3rd Tuesday, 12 noon, Contact: William  
Nevin, M.D.

### Hematology Conference

4th Tuesday, 12 Noon, Contact: M. Boxer,  
M.D.

### Infectious Disease Conference

2nd Tuesday, 12 noon, Contact: B. Friedman,  
M.D.

### Nephrology Conference

1st Tuesday, 12 noon, Contact: Dr. Seltzer.

### Orthopedic Conference

1st Tuesday, 8:00 p.m., Contact: Jay Katz,  
M.D.

### Pediatric Grand Rounds

1st & 3rd Tuesday, 12:30 p.m., Contact: Dr.  
Lightner.

### Cardiac Cath. Conference

2nd & 4th Wednesday, 5:15 p.m., Contact: L.  
Buckels, M.D.

### Clinical Pathology Conference

Last Wednesday, 8:00 a.m., Contact: Dr.  
Fuchs.

### Family Practice Meeting

2nd Wednesday, 12:30 p.m., Jan., April, July,  
& Oct. Contact: C. Mangelsdorf, M.D.

### Medical Conference

Weekly Wednesday, 8:00 a.m., Contact: M.  
Fuchs, M.D.

### Neurology-Neurosurgery Conference

Weekly Wednesday, 12 noon, Contact: H. W.  
Buschsbaum, M.D.

### Dermatology Conference

1st Thursday, 12 noon, Contact: R. Friedman,  
M.D.

### Neuroradiology Conference

Weekly Thursday, 5:00 p.m., Contact: N.  
Komar, M.D.

### Tumor Conference

Weekly Thursday, 12 noon, Contact: Dr.  
Hastings.

### G—I Conference

Weekly Friday, 12 noon, Contact: C. Krone,  
M.D.

### Interhospital Nuclear Medicine Conference

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts,  
M.D.

### OBGYN Conference

1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

### OBGYN Pathology Conference

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

### Surgical Department Conference

Weekly Saturday, 7:30 a.m., Contact: Dr.  
Hastings, TMC.

### Surgical Grand Rounds

Weekly Saturday, 9:00 a.m., UAHSC-Room  
5403, Contact: Dr. Norton.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson,  
AZ 85724. Robert M. Anderson, M.D., Dir. of  
CME. Contact: See below. Approved for  
category 1 credit.

### Anesthesiology Board Review Conference

2nd & 4th Monday, 4-5 p.m., AHSC Dining  
Rm. C&D, Contacts: Dr. Vaughn & Kryc.

### Anesthesiology Basic/Clinical Sciences Lectures

Weekly Thursday, 4-5 p.m., Room 5403

### Anesthesiology Case Discussion

Weekly Wed., 7:00 a.m., AHSC, Dining Rm.  
C&D.

### Anesthesiology Resident Presentation

1st Monday, 4-5 p.m., AHSC Dining Room,  
C&D, Contacts: Drs. Otto & Zehngut.

### Cancer Center Tumor Board Seminar

3rd Tuesday, Monthly, 12-1 p.m., HSC  
Auditorium, Contact: Cancer Center

### Cardiac Catheterization Conference

Weekly Friday, 4:00 p.m., Contact: Dr.  
Temkin.

### Cardiology Research Conference

Weekly Tuesday, 7:30 a.m., Contact: Dr.  
Roeske.

### Tucson Cardiovascular Society

1st Thursday, 6:00 p.m., AHSC, Contact: Dr.  
Byrne-Quinn

### Cerebrovascular Disease Conference

Weekly Monday, 5:00-6:00 p.m., AHSC, Rm.  
5505, Contact: Dr. W. Moore

### Clinical Immunology, Allergy

### & Rheumatology Rounds

Every Friday, Noon-1 p.m. Contact: John  
Boyer, M.D., Dept. of Internal Medicine.

### Cerebrovascular Disease Conference

Mondays, 5-6 p.m., Weekly, Rm. 5505.  
Contact: Wesly Moore, M.D., Depts. of  
Surgery, Neurology & Radiology.

### Dermatology Rounds

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

### Endocrinology Seminar

Weekly Thursday, 12-1 p.m., Contact: Dr.  
Johnson

### GI Pathology Conference

4th Friday, 1:30 p.m., AHSC, Contact: S.  
Paplanus

### GI Radiology Conference

2nd. & 4th Mondays, 7:30 a.m., AHSC,  
Contact: Dr. T. Hunter

### Head & Neck Tumor Management Conference

Weekly Wed., 4:00 p.m., Contact: Dr.  
Manning

### Hematology-Oncology Clinical Conference

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505.  
Contact: S. Salmon, M.D., Dept. of Internal  
Medicine.

### Medical Grand Rounds

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr.  
J. Smith.

### Morbidity/Mortality In E.M.

2nd Tuesday, 9:00 a.m., AHSC, Contacts:  
Drs. Hughes & Alcorn

### Neuromuscular Disease Conference

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

### Neuropathology Review Conference

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

### Neuroradiology Conference

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C.  
Christenson

### Neuromuscular Journal Conference

2nd & 4th Thursday, 7-9 p.m., Contact: Dr.  
Stern.



**Neuropathology Case Review**

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

**Neurosciences Seminar**

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

**Nuclear Medicine**

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

**Ophthalmology Grand Rounds**

3rd Friday, 7:30 a.m., AHSC, Contact: Dr. J. Herschler

**Orthopedic Rounds**

Saturday, 8:00 a.m., Contact: Dr. Peltier.

**Pain Conference**

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

**Pathology Seminar**

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

**Tucson Pathologist Conference**

1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

**Pediatric Grand Rounds**

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

**Pediatric Problem Patient Conference**

Weekly Wed., 8:00 a.m., Contact Dr. Walson

**Pediatric Research Forum**

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

**Pediatric Specialty Conference**

Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

**Psychiatric Grand Rounds**

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

**Psychiatric Monthly Case Conference**

2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

**Pulmonary Rounds**

Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

**Chest Radiology**

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

**Neuroradiology Teaching Conference**

Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

**Radiation Oncology Planning Conference**

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

**Radiology Interesting Case Conference**

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

**Gastrointestinal Radiology**

Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

**Radiology-Rheumatology Conference**

Weekly Thursday, 7:45 a.m., UAHSC, Library Rm. 1535C.

**Uroradiology (Genitourinary Radiology)**

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

**Renal Pathology Conference**

1st & 3rd Thurs., 11:30 a.m., Contact: Dr. Nagle.

**Residents Noon Conference**

Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact: Dr. A. Greensher.

**Resident's Conference**

Wednesday, weekly 5-6 p.m., Diag. Radiology Conf. Rm.

**Surgical Grand Rounds**

Saturdays, 9:00 a.m., Rm. 5403, AHSC, Contact: Dr. Wangenstein.

**Surgical Morbidity & Mortality Conference**

Weekly Wed., 8:00 a.m., Contact: Dr. Wangenstein.

**Joint Thyroid Conference**

1st & 3rd Wed., Contact: S. C. Werner, M.D.

**Trauma Conference**

Monday, 4:00 p.m. UAHSC, Rm. 4410, Contact: Dr. Peltier.

**Toxicology Conference**

Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes Section.

**Tucson Ultrasonography Group**

Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

**General Urology Conference**

Weekly Tuesday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix, AZ 85012. Contact: Alfred Heiburn, M.D. Approved for Category 1 credit.

**GI X-Ray Clinical Correlation Conf.**

1st & 3rd Monday, 1 p.m., Rm. C435, Contact: Drs. Sanowski, & Jarczyk.

**Medical/Surgical GI Conference**

1st & 3rd Mondays, 3 p.m., Rm. 3134, Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext 493.

**GI Pathology Conf.**

2nd. & 4th Monday, 1 p.m., Path Conf. Rm, Contact: Dr. Sanowski..

**GI Grand Rounds**

Weekly Tuesday, 1 p.m., Contact: Drs. Sanowski, Kozarek & Partyka

**Cancer Symposium**

Weekly Wed., 1 p.m., T-5, Contact: Dr. Byrne, Ext. 426.

**Housestaff Pulmonary Disease Teaching Conf.**

Weekly Wed., 3-4 p.m., Contact: Dr. Rohwedder, Ext. 388.

**Medical Surgical Chest Conference**

1st & 3rd Thursday, Contact: Dr. Rohwedder or Dr. Gill.

**Cardiology Conference**

2nd Thursday, 1 p.m., Rm. T-5.

**Consultant Rounds**

1st Thursday, 1:30 p.m., Contact: Dr. Harlan

**Consultant Rounds**

2nd Thursday, 11:00 a.m., Contact: Dr. Schaffner

**Consultant Rounds**

4th Thursday, 8:00 a.m., Contact: Dr. Severino

**Medical Service Grand Rounds**

Weekly Friday, 11 a.m., Contact: Dr. Zeller

**GI Resident Conference**

Weekly Friday, 1:00 p.m., D446, Contact: Drs. Grobe, Phelps, Sanowski and Kozarek.

**Surgical Journal Review & Videotape Session**

Weekly 1 p.m., Room 3134.

## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed below. Approved for category 1 credit.

**Medical Lectures**

1st & 2nd Thursday & Weekly, Fridays, 1:30 p.m., Bldg. 28. Contact: J. W. Fitzharris, D.O.

**GI Rounds**

Third Thursday, 10 a.m.-2:30 P.M., Contact J. W. Fitzharris, D.O.

**Grand Rounds**

Weekly Thursdays, 11 a.m., Bldg. 107 Contact: J. W. Fitzharris, D.O.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723 Contacts listed below. Approved for category 1 credit.

**Medical Surgical Chest Conference**

Weekly Tuesday, 2 p.m., Contact: Dr. Young

**Medical Grand Rounds**

Weekly Wed., 12-1:00 p.m., VA Hospital Staf Conf. Rm. & (AHSC), Contact: Jay Smith M.D.

**Surgical Grand Rounds**

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

**Endocrinology Seminar**

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm N318, Contact: Dept. of Internal Medicine.

**Grand Rounds**

Weekly, Thursday, 11 a.m., Bldg. 107 Contact: J. Fitzharris, D.O.

**Vascular Radiology, Interesting Case Conf.**

Weekly Thursday, 12:00 noon.

**Neurology Grand Rounds**

Weekly Friday, 12 p.m., Contact: Dr. Sibley

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

**Radiology Conference**

1st Tuesday, 7:00 a.m.

**Operation Outreach**

2nd Tuesday, 6:30 p.m.

**Pathology Conference**

4th Tuesday, 7:00 a.m.

**Operation Outreach**

2nd Wednesday, 7:00 a.m.



# Practice what we teach.

Today there are over 31 million men, women and children suffering from the many forms of arthritis and related rheumatic diseases. And there just aren't enough trained rheumatologists to help them.

That's why arthritis sufferers need your help.

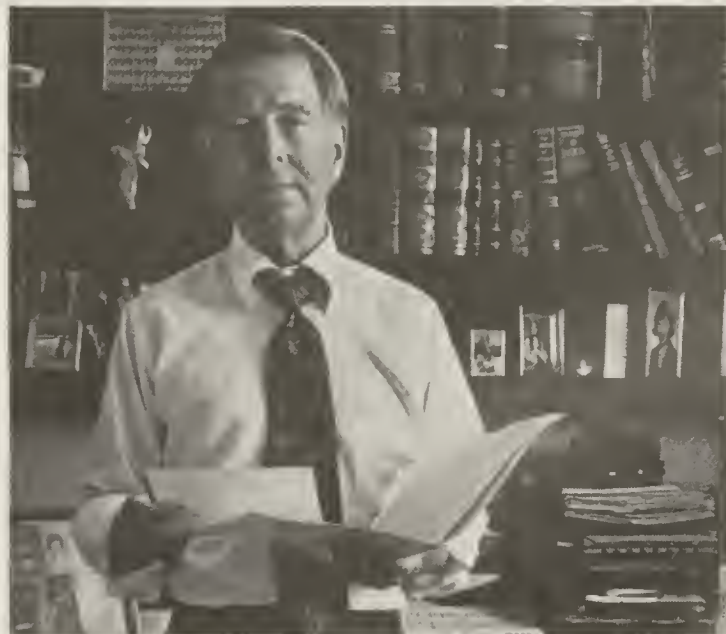
They must depend heavily on the family practitioner for better diagnosis, more effective patient treatment.

Contact your local Arthritis Foundation chapter for the latest information on arthritis. This includes continuing educational seminars by leading rheumatologists, scientific meetings, "outreach" programs — as well as the "Bulletin on the Rheumatic Diseases," "Arthritis and Rheumatism Journal," "Primer on the Rheumatic

Diseases," audio cassettes and other professional materials. Free disease handbooks and medication pamphlets are also available to patients.

Please. Let us help your practice with what we teach.

The Arthritis Foundation helps doctors help.



# COMPUTED TOMOGRAPHY OF THE HEAD



## **CNS** Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207•  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

## **Valley Prosthetics, Inc.**

*announces that*

**Vernon H. Lehde**

**Certified Prosthetist—Orthotist**

has recently joined the staff of  
Valley Prosthetics with

55 years past experience, adding

**Orthopedic Appliances**

to its other services of

**Artificial Limbs, Medical Equipment**

**Rental and Handicab Service.**

**Telephone for appointment-894-0145**

**734 E. Broadway, Tempe, Arizona**

## **MEDICAL BOOKSTORE**



The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

## **MEDICAL BOOKSTORE**

College of Medicine

Arizona Health Sciences Center

Tucson, Arizona 85724

Phone: 626-6669



# Local families find young adult treatment program helps solve serious problems.

The period from approximately 18 to 25 years of age can be the most difficult of a lifetime.

It is a time of change, decision-making and responsibility-taking. Young adults are pulled in every direction, and many are not prepared for the sudden transition from childhood to adulthood.

Confusion, anxiety, a sense of failure and depression are overwhelming experiences for the young adult, and the use of drugs and alcohol only make things worse. As a result, the young adult is often immobilized by uncertainty.

At Scottsdale Camelback Hospital, our Young Adult Treatment Program works closely with such young people to stabilize their emotions and alleviate symptoms. The program lays a foundation for growth and development. Values are clarified. Career goals are examined.

The program has been instrumental in solving serious problems for a number of families faced with the need to assist a young adult during this trying period. If such a problem is occurring in your family, you are urged to consult your physician about our program, or to call Scottsdale Camelback Hospital for further details.

Camelback Hospitals are among the leading psychiatric centers of the Southwest. An open medical staff of more than 60 psychiatrists, as well as psychologists, psychiatric nurses, social workers and activity therapists provide 24-hour care. Camelback Hospitals and Camelback Mental Health Center are fully accredited and licensed by the State of Arizona.

There are specialized programs for adolescents (13-17 years of age) at our Phoenix Camelback Hospital. For further information, consult your physician or call us today.

  
**SCOTTSDALE CAMELBACK HOSPITAL**  
7575 E. Earll Drive Scottsdale, AZ 85251 Phone: 941-1108

*Doctor —  
This newspaper ad  
has been scheduled  
in leading Valley  
newspapers.  
Daniel W. Capps,  
President Camelback  
Hospitals*

***"We're getting good billing  
because it costs a lot!"***

Gullible  
PC



Sure...and the way to select a good attorney is to find the one who charges the most. Let's get serious.

Relating performance to cost is not always smart. Right now, we can't name one office who can do a better job of billing or do it for less than us. With well conceived computer programs and billing procedures, there are ways to keep both losses and costs to an absolute minimum. The secret is in our background and experience.



**The Anesthesia Office, Inc.**

Main Office: Post Office Box 39429, Phoenix, Arizona 85069 (602) 242-1908





Carl T. Kirchmaier, M.D.  
Medical Director

In the equitable classification of risks for life and health insurance applicants, a company's professional is their Medical Director. He is the link between the home office underwriter and the applicant's own physician. It is his confidential evaluation of health information furnished by you which helps to determine the proper issue classification, so that all policy-owners pay their fair share.

We at HBA Life have prided ourselves on our close rapport with the Arizona Medical profession since our founding in 1944.

Dr. Kirchmaier is an important part of that relationship.



LIFE INSURANCE COMPANY

1337 N. FIRST ST. (P.O. BOX 1272), PHOENIX, AZ 85001 (602) 258-4885

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully bound books. Choose from 30 different colors of durable Library Buckram

**\$13.50 per volume, (name imprint.75)**

**\$15.00 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

**Free** local pickup and delivery on 10 volumes or more

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338

## WHY LEASE?

Simple. You can maintain cash flow there's no down payment and investment tax credit is available.

Call LEASING OF PHOENIX for free quotation and competitive rates on:

- office equipment
- medical and dental equipment
- telephone systems
- security systems
- computers
- word processors
- copiers
- boats, marine
- corporate aircraft
- autos, individual or fleet

**CALL LEASING OF PHOENIX**  
**602/990-1624**

# NEW TOLL-FREE 1-800-352-7981



John C. Lincoln Hospital

## TRAUMA CENTER Physician Referral Line

A 24-hour direct line to the Trauma Center physician!

9211 North Second Street - Phoenix, AZ 85020



# **SAVE \$650 ON MY OFFICE SUPPLIES??**

Arizona physicians are saving as much as 28% on purchases of professional supplies and equipment through the Western Physicians Purchasing Association, a non-profit organization partially owned by your state medical association.

The average WPPA member from Arizona saved \$458 in 1979 — more than 9 times the 1980 dues of \$50.00 per doctor.

Professional items, office supplies, professional equipment, office furniture . . . more than 16,000 items available.

## **HOW MUCH MONEY HAVE YOU LOST BECAUSE YOU HAVEN'T BEEN A WPPA MEMBER?**

For additional information, call WPPA at (801) 479-1767

**It's Easy . . .**

**Just Join The WPPA, It Will More Than Save you State Medical Association Dues—**

## **WESTERN PHYSICIAN PURCHASING ASSOCIATION**

**Another membership benefit of the  
Arizona Medical Association**

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"

## SELLARD ENGRAVING

*engraving for*

- Gifts • Name Plates • Award Plaques •
- Desk Accessories • Plastic Signs •
- Rubber Stamps • Keys •

*One Day Service*

Town and Country Shopping Center  
2051-A East Camelback Road  
Phoenix - Telephone: (602) 956-4270

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

## Louis Jacob

General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



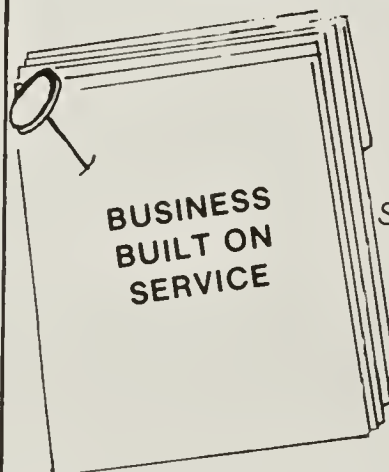
We Want You With Us



## L. Louis Jacob Agency

Complete Insurance Services  
Call Us for an Auto Quote

## GUARANTEED SAVINGS!!



Billing and mailing  
same — day service

Statements made from your  
ledgers at your office

House of Mailings  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708

...Synonymous With  
the Relief of Headaches  
Concerning Practice  
Management Problems.



J. Prekup & Assoc.  
Amanda L. Weaver

**Problem Solvers for the Medical Profession.**

3033 N. Central, Suite 509-C Phoenix, Az 85012  
(602) 279-1884

Tired of all that money going out?

For a competitive Quote on:

- Physicians & Surgeons Malpractice •
- Office Package •
- Automobile •
- Homeowners •



**PHOENIX-AMERICAN INSURANCE AGENCY**

1101 W. Indian School Road  
264-4684

representing St. Paul, The Home, Safeco,  
and other reliable companies



## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### COLON AND RECTAL SURGEON

To join group or partnership, available July 1981. CV on request. Dennis A. Fried, M.D., Department of Colon and Rectal Surgery, Cleveland Clinic, Cleveland, Ohio. (216) 444-6671 or evenings (216) 752-5434.

### LOCUM TENENS WORK WANTED

*The more you know about choices, the easier it is to choose.* That's why CompHealth, the oldest, largest locum tenens organization in the United States, can help make choices easier for you. Any specialty can be covered including: FP, IM, Rad, Anes, and ObGyn. With a large selection of reliable qualified physicians to choose from, CompHealth provides physicians, hospitals, clinics and communities with dependable locum tenens coverage, allowing you to keep your practice covered without inconvenience or concern. Turn a difficult decision into an easy choice. Contact: COMPHEALTH, 175 West 200 South, Suite 2003, Salt Lake City, UT 84101. (801) 532-1200.

### SEEKING POSITION

Board certified orthopedic surgeon, member of American Academy of Orthopedic Surgery, American College of Surgery, International College of Surgery. General Orthopedics with special interest in total joint replacement and arthroscopy. Caucasian, 33 years old, married. Desire: Solo practice or will share office. No multispecialty groups. Contact: Jerry L. Cochran, 304 S. Park Lane, Altus, OK 73521.

### FOR SALE

We have a licensed supervisory care home in Bisbee - capacity of 42 patients for sale. Beautiful climate - Beautiful view - Price negotiable - sprinkler system thru out. Call (602) 364-5111, 364-2356, 364-9350.

## REAL ESTATE

### ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### FLAGSTAFF MEDICAL BUILDING LEASE AND OWN

Located next to the Flagstaff Hospital and Medical Center on the corner of Forest and Beaver Streets. A Pharmacy, laboratory and radiology in the complex plus parking easily accessible to either your office or the hospital makes the Flagstaff Medical Building the desired choice for the largest number of practicing physicians in any medical building located in Northern Arizona. Your customized medical office suite (ranging from 800 to 2000 sq ft) is now available at the most reasonable cost, plus the existing partnership is now offering those tenants signing leases before May 15, 1981 the opportunity to purchase an ownership interest in the building. Please contact: Bruce O. Utterback, C.P.M., Flagstaff Medical Building, 1355 N. Beaver, Flagstaff, Arizona 86001. (602) 774-4416.

### MEMORIAL MEDICAL OFFICE BUILDING

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

### LINCOLN PLAZA MEDICAL CENTER

Medical/Dental Space for Lease - Prestigious area, design your own space. Highest tenant improvement allowance in the area. Very reasonable rates. Contact: Louise Farmer, 7125 E. Lincoln Drive, (602) 955-5595.

### FOR RENT

Medical Office Space available in Memorial Office Building 7th Ave and Buckeye. Four examining rooms, approximately 1,250 square feet. Pharmacy, x-ray & lab., Immediate occupancy. For information call (602) 956-7740.

### BEAUTIFUL CONDOMINIUM

Condominios Pilar  
San Carlos Bay, Mexico  
For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

### SCOTTSDALE, ARIZONA

Two Scottsdale, Arizona, internists wish to share office space and expenses. Internal Medicine sub-specialty desired. New office space completely furnished with modern diagnostic equipment including x-ray and treadmill. Call (602) 991-9120 or reply to Box 126, c/o Arizona Medicine, 810 W. Bethany Home Road, Phoenix, Arizona 85013.

### PINETOP MOUNTAIN CABIN - FOR RENT

White Mountain summer home. Ideal now for springtime activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

### MESA OFFICE SPACE FOR SUB-LEASE

1450 South Dobson Road. On grounds of Desert Samaritan Hospital. 1720 sq. ft. Available after July 1, 1980. Suitable for Family Practice. Internal Medicine or other specialties. Medical equipment may be available (either for lease or sale.) One room designed for x-ray or regular exam room. Contact: (602) 831-8297. 301 W. Chilton, Chandler, Az 85224.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

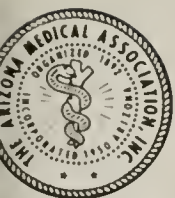
General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

## INDEX TO ADVERTISERS

|                                              |                 |
|----------------------------------------------|-----------------|
| Advanced Computer Techniques.....            | 261             |
| AirEvac.....                                 | 260             |
| The Anesthesia Office, Inc. ....             | 310             |
| Arizona Laminating .....                     | 246             |
| Boots Pharmaceuticals                        |                 |
| F-E-P Creme, SU-TON, Twin-K,                 |                 |
| Twin-Cl .....                                | 253,254,255,256 |
| Bristol Laboratories                         |                 |
| Tegopen .....                                | 248, 249        |
| Burroughs Wellcome                           |                 |
| Neosporin Topicals .....                     | 266             |
| Zyloprim .....                               | 297             |
| Camelback Hospital .....                     | 309             |
| Classified Ads .....                         | 314, 315        |
| Computed Neuorological Scanning Center ..... | 308             |
| Computed Tomography .....                    | 258             |
| Doctors Central Directory .....              | 314             |
| Eli Lilly & Co.                              |                 |
| Ceclor.....                                  | 251             |
| HBA Life Insurance .....                     | 311             |
| Health Agencies of the West .....            | 250             |
| House of Mailings.....                       | 314             |
| Institute for Human Services.....            | 299             |
| Louis Jacobs .....                           | 314             |
| Leasing of Phoenix.....                      | 312             |
| John C. Lincoln Hospital .....               | 312             |

|                                            |                           |
|--------------------------------------------|---------------------------|
| Medical Bookstore .....                    | 308                       |
| Memorial Hospital Foundation .....         | 308                       |
| Mica Insurance Co. ....                    | 257                       |
| Mountain Bell.....                         | 247                       |
| Van O'Steen & Partners .....               | 258                       |
| Phoenix/American Insurance .....           | 314                       |
| Prekup and Associates .....                | 314                       |
| Roche Labs                                 |                           |
| Valium .....                               | Second Cover, 245, 246    |
| Librax .....                               | 303                       |
| Bactrim.....                               | Third Cover, Fourth Cover |
| Roswell Bookbinding.....                   | 312                       |
| Sellards Engraving .....                   | 314                       |
| Sequoia Group, Inc.....                    | 265                       |
| Danny T. Sievert                           |                           |
| Insurance.....                             | 314                       |
| Smith Kline & French                       |                           |
| Dyazide .....                              | 283                       |
| St. Luke's Hospital & Medical Center ..... | 258, 302                  |
| UpJohn Company                             |                           |
| Motrin.....                                | 284, 285, 286             |
| UpJohn Health Care Service.....            | 304                       |
| Valley National Bank .....                 | 252                       |
| Valley Prosthetics .....                   | 308                       |
| Western Physician                          |                           |
| Purchasing Assoc. ....                     | 313                       |





# ARIZONA MEDICINE



ISSN 0004-1556)

JOURNAL OF ARIZONA MEDICAL ASSOCIATION  
MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

U of A College of Medicine  
Symposia - Part I

## SEMINARS IN CONTINUING EDUCATION

Introduction ..... 343  
*Louis J. Kettel, M.D.*

Lung Toxicity Resulting from Exposure  
to Nitrogen Dioxide:  
A Possible Occurance Due to  
Titan Missile Accidents ..... 344  
*Robin L. Brey, Medical Student, et al.*

Intravenous Cerebral Angiography:  
Early Clinical Experience ..... 349  
*Raymond F. Carmody, M.D., et al.*

Diagnosis and Treatment of  
Male Erectile Dysfunction ..... 351  
*Larry E. Beutler, Ph.D., et al.*

Thyroid Function Tests  
in Nonthyroidal Illness are Diagnostically and  
Prognostically Important ..... 356  
*Sidney C. Werner, M.D., D.Sc. (Med.)*

Diagnostic Imaging Dilemma:  
Guidelines in Decision Making for the  
Primary Care Physician ..... 359  
*John R. Siler, M.D., et al.*

Diagnostic Electron Microscopy ..... 367  
*Claire M. Payne, Ph.D., et al.*

Muscle Biopsy:  
Recent Advances in Diagnostic Techniques ..... 373  
*Janet A. Johnson, M.D., et al.*

Guidelines for the Serodiagnosis of  
Acute Viral Hepatitis ..... 376  
*Richard E. Sampliner, M.D.*

Needle Aspiration Biopsy of  
Thyroid Nodules ..... 378  
*Lawrence W. Norton, M.D., et al.*

## EDITORIALS

Holistic Medicine: Is it all Good? ..... 380  
*Marshall B. Block, M.D.*

Where Should the Accent in Continuing  
Medical Education be Placed? ..... 381  
*Robert M. Anderson, M.D.*

CORRESPONDENCE ..... 382

ArMA REPORTS ..... 383

FUTURE MEETINGS ..... 385

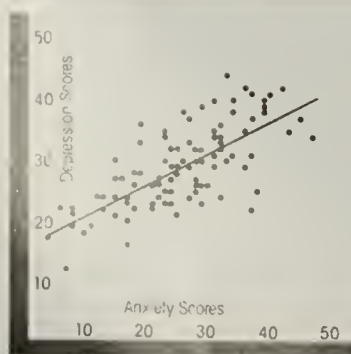
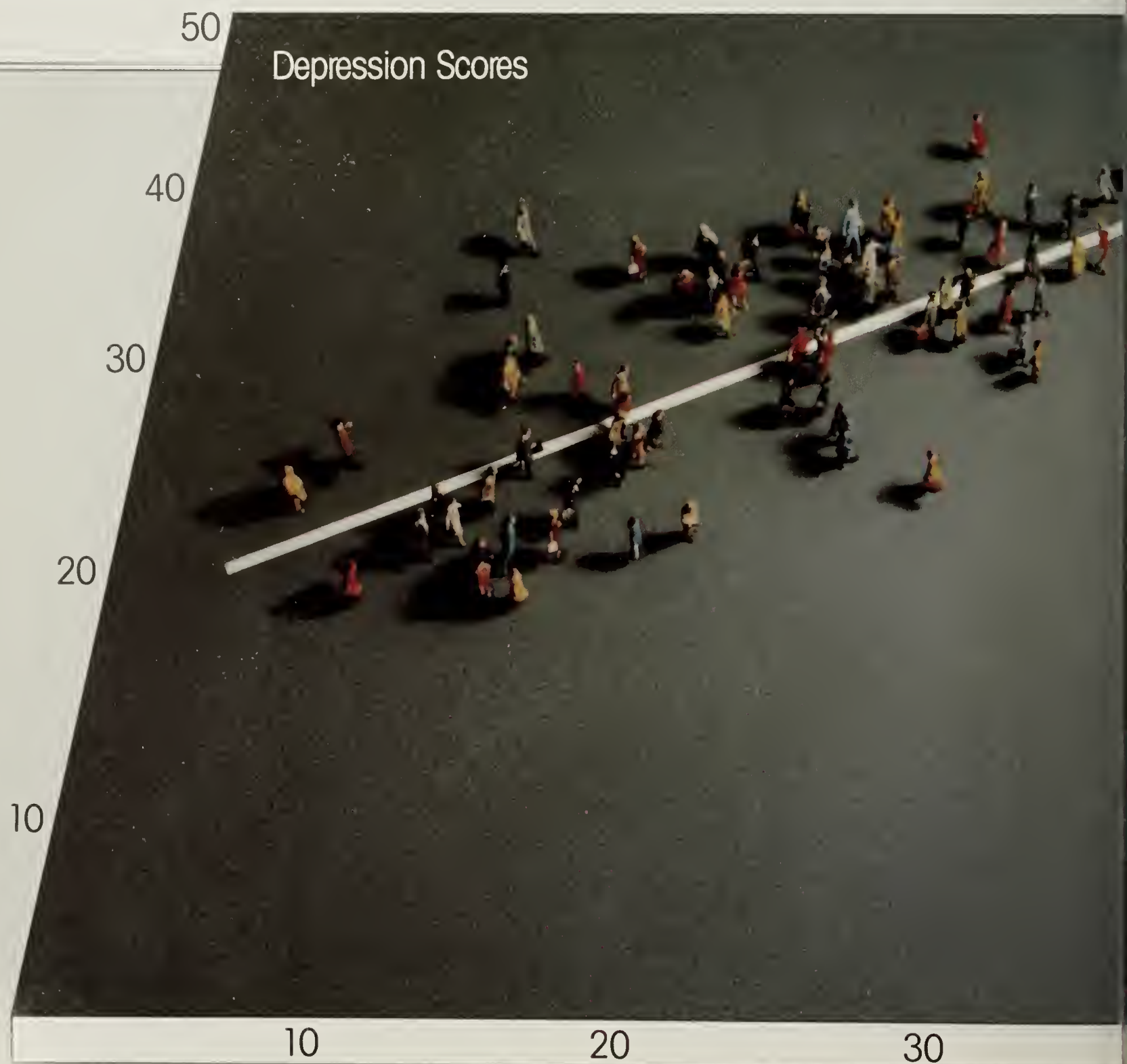
LIBRARY  
U.C. SAN FRANCISCO

MAY 31 1981

XVIII, NO. 5

THE LIBRARY, ACQUISITIONS DIV.  
U. OF CALIF., S.F.  
SAN FRANCISCO, CA 94143

# FOR THE 7 OF 10 NONPSYCHOTIC



## Clear correlation between anxiety and depression<sup>3</sup>

The above graph illustrates a relationship between anxiety and depression, indicating that patients seldom present with anxiety or depression alone; more often they have both in varying degrees. Data based on a sampling of 100 outpatients (64 male; 36 female) seen at a general psychiatric clinic.

<sup>3</sup>Adopted from Cloghorne, J. The anxiety-depression syndrome. *Psychosomatics* 11:438-441, Sept-Oct 1970.



# DEPRESSED PATIENTS WHO ARE ALSO ANXIOUS<sup>1,2</sup>

## Most depressed patients are also anxious. . .

Some authors estimate that 70% of all nonpsychotic patients with symptoms of depression have concomitant symptoms of anxiety.<sup>1,2</sup> One author found a distinct correlation between anxiety and depression scores in 100 nonpsychotic outpatients administered the Minnesota Multiphasic Personality Inventory in a general psychiatric clinic.<sup>3</sup> As depression scores increased, so did anxiety scores. No attempt was made to select patients other than to exclude psychotics.

## but not psychotic

The logic of treating both components of anxious depression is clear. Antipsychotics, like the phenothiazines, however, carry a well-documented risk of tardive dyskinesia.<sup>4</sup> Because of this, an APA Task Force recently recommended the judicious use of phenothiazines in cases other than chronic psychosis or the use of alternative treatments.

## A better way to give relief

Limbitrol combines the specific anxiolytic action of Librium® (chlordiazepoxide HCl/Roche)—a benzodiazepine with a long history of safe use—with the antidepressant action of amitriptyline, a tricyclic of established clinical efficacy. In comparison to phenothiazines, Limbitrol and its components have rarely been associated with tardive dyskinesia or other extrapyramidal side effects. And in terms of rapid response and patient compliance, Limbitrol appears to be superior to amitriptyline alone. Controlled multiclinic studies showed Limbitrol relieved more symptoms more rapidly than did amitriptyline.<sup>5</sup> Despite a higher incidence of drowsiness, the dropout rate due to side effects was lower with Limbitrol. (See adverse reactions section in summary of product information on next page. As with any CNS-acting agent, patients should be cautioned about driving or using dangerous machines while on therapy with Limbitrol.)

**References:** 1. Rickels K: Drug treatment of anxiety, in *Psychopharmacology in the Practice of Medicine*, ed. Jarvik ME. New York, Appletan-Century-Crafts, 1977, p. 316. 2. Schatzberg AF, Cole JO: Benzodiazepines in depressive disorders. *Arch Gen Psychiatry* 35:1359-1365, 1978. 3. Claghorn J: The anxiety-depression syndrome. *Psychosomatics* 11:438-441, 1970. 4. The Task Force on Late Neurological Effects of Antipsychotic Drugs: Tardive dyskinesia, summary of a task force report of the American Psychiatric Association. *Am J Psychiatry* 137:1163-1172, 1980. 5. Feighner JP *et al*: A placebo-controlled multicenter trial of Limbitrol versus its components (amitriptyline and chlordiazepoxide) in the symptomatic treatment of depressive illness. *Psychopharmacology* 61:217-225, 1979.

Anxiety Scores

50

In moderate depression and anxiety

# Limbitrol®<sup>®</sup> IV

**Tablets 5-12.5** each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)

**Tablets 10-25** each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt)

## Relief without a phenothiazine

Please see summary of product information on next page.

## LIMBITROL® TABLETS Tranquillizer—Antidepressant

Before prescribing, please consult complete product information.

### Summary of which follows:

**Indications:** Relief of moderate to severe depression associated with moderate to severe anxiety.

**Contraindications:** Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

**Warnings:** Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses). Myocardial infarction and stroke reported with use of this class of drugs. Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

**Usage in Pregnancy:** Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

**Precautions:** Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated. Sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12.

In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

**Adverse Reactions:** Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs.

**Cardiovascular:** Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke.

**Psychiatric:** Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.

**Neurologic:** Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.

**Anticholinergic:** Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

**Allergic:** Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.

**Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

**Gastrointestinal:** Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.

**Endocrine:** Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels.

**Other:** Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

**Overdosage:** Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. I.V. administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

**Dosage:** Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single h.s. dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

**How Supplied:** White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays at 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10, Prescription Paks of 50.



Two convenient dosage forms: 100 mg (white) and 300 mg (peach) Scored Tablets



Tablets imprinted with brand name to assist in tablet identification.



Burroughs Wellcome Co.  
Research Triangle Park  
North Carolina 27709

Arizona Medicine (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to Arizona Medicine 810 W. Bethany Home Rd., Phoenix, AZ 85013.

Arizona Medicine does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.

ROCHE

ROCHE PRODUCTS INC  
Manati, Puerto Rico 00701



# NOW, AN AFFORDABLE COMPUTER SYSTEM TAILORED TO FIT YOUR PRACTICE

The ACT-OMEGA System:  
Every Day Without It Could Be Costing You Money



## WHY?

1. All your bookkeeping needs can be handled simply and efficiently, including billing, credit records, appointments, general ledger and payroll.
2. The system quickly prepares your claim forms to speed your payments from insurance companies.
3. You receive current credit reports to help you control your overdue patient payments.
4. You have fast and comprehensive access to all patient-related information, including physician statistics by diagnosis and type of procedure.

5. You receive important management reports such as physician's reports giving the number of new patients seen, the office revenue provided, and expenses incurred by both the individual doctor and the group as a whole.

PLUS many more features to help you manage your practice more efficiently. We adapt to you. We don't ask you to adapt to us.

ACT-OMEGA has been providing medical information management systems in the valley since 1970. As a division of Advanced Computer Techniques Corporation, it is part of a multi-national information processing, products, consulting and services organization.

We can work with you three ways: Set up a computer system in your office, put a terminal in your office connected to our computer, or give us your paper work and we'll do the work for you. Which ever system you choose, ACT-OMEGA has the systems to make your growth easy and profitable.

Call ACT-OMEGA now to find out how affordable your computer system can be . . . You may be surprised how quickly a computer can pay for itself.

# ACT-OMEGA

222 N. Central, Suite 101 Phoenix, Arizona 85004 602/258-3222

# DRAMATIC NEW CLINICAL PROOF\*

**In the treatment of impetigo—**

- **100% cure rate with Tegopen® (cloxacillin sodium)**
- **only a 60% cure rate with penicillin V-K**



**As seen on admission**



**After one week of penicillin V-K therapy**



**Two weeks after initiation of TEGOPEN therapy**

Treatment failure was judged to have occurred when lesions increased in size and/or number during the initial week of treatment with penicillin V-K. No treatment failures occurred with Tegopen.

\*Data on file, Bristol Laboratories.

## Brief Summary of Prescribing Information

**TEGOPEN®**  
(cloxacillin sodium)  
Capsules and Oral Solution

For complete information, consult Official Package Circular.

(12) 9/11/75

### INDICATIONS:

Although the principal indication for cloxacillin sodium is in the treatment of infections due to penicillinase-producing staphylococci, it may be used to initiate therapy in such patients in whom a staphylococcal infection is suspected. (See Important Note below.)

Bacteriologic studies to determine the causative organisms and their sensitivity to cloxacillin sodium should be performed.

### IMPORTANT NOTE

When it is judged necessary that treatment be initiated before definitive culture and sensitivity results are known, the choice of cloxacillin sodium should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci, Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the bacteriology report later indicates the infection is due to an organism other than a penicillin G-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semi-synthetic penicillin.

Recent studies have reported that the percentage of staphylococcal isolates resistant to penicillin G outside the hospital is increasing, approximating the high percentage of resistant staphylococcal isolates found in the hospital. For this reason, it is recommended that a penicillinase-resistant penicillin be used as initial therapy for any suspected staphylococcal infection until culture and sensitivity results are known.

Cloxacillin sodium is a compound that acts through a mechanism similar to that of methicillin against penicillin G-resistant staphylococci. Strains of staphylococci resistant to methicillin have existed in nature and it is known that the number of these strains reported has been increasing. Such strains of staphylococci have been capable of producing serious disease, in some instances resulting in fatality. Because of this, there is concern that widespread use of the penicillinase-resistant penicillins may result in the appearance of an increasing number of staphylococcal strains which are resistant to these penicillins.

Methicillin-resistant strains are almost always resistant to all other penicillinase-resistant penicillins (cross-resistance with cephalosporin derivatives also occurs frequently). Resistance to any penicillinase-resistant penicillin should be interpreted as evidence of clinical resistance to all, in spite of the fact that minor variations in *in vitro* sensitivity may be encountered when more than one penicillinase-resistant penicillin is tested against the same strain of staphylococcus.

### CONTRAINDICATIONS:

A history of a previous hypersensitivity reaction to any of the penicillins is a contraindication.



## RESULTS OF ORAL THERAPY revealed a high percentage of treatment failures with penicillin V potassium, but *no* failures with Tegopen.

|                                                                   |                     | Given Tegopen®<br>(cloxacillin sodium) | Given<br>penicillin V-K |
|-------------------------------------------------------------------|---------------------|----------------------------------------|-------------------------|
| <i>Staphylococcus aureus</i>                                      | (78 patients)       | 39                                     | 39                      |
| Returned to clinic at one week                                    |                     | 29†                                    | 38†                     |
| Treatment failure at one week                                     |                     | 0                                      | 18 (47.4%)              |
| <i>Staphylococcus aureus</i> and<br><i>Streptococcus pyogenes</i> | (9 patients)        | 4                                      | 5                       |
| Returned to clinic at one week                                    |                     | 4                                      | 5                       |
| Treatment failure at one week                                     |                     | 0                                      | 2 (40%)                 |
| No initial bacterial growth                                       | (14 patients)       | 9                                      | 5                       |
| All 14 healed, regardless of which antibiotic was administered.   |                     |                                        |                         |
| Beta-hemolytic <i>Streptococcus</i>                               | (1 patient)         | 0                                      | 1                       |
| <b>TOTALS:</b>                                                    | <b>102 patients</b> | <b>52 patients</b>                     | <b>50 patients</b>      |

†Eleven patients did not return for their one-week checkup. These were all called by telephone, and their families reported

the lesions had healed. One patient was dropped from the study, early, because of adverse reaction to medication

### STUDY: DESCRIPTION/PROTOCOL

- 102 nonselected subjects, with initial bacteriology as follows: 77% *Staphylococcus aureus*, 9% mixed *Staphylococcus aureus* and *Streptococcus pyogenes*, and 1% beta-hemolytic *Streptococcus*.‡
- All patients were given randomized therapy—Tegopen capsules or oral solution, or penicillin V-K tablets or oral solution, in recommended dosages according to body weight.

- All patients were evaluated after one week's therapy. If there was no improvement, therapy was switched to the other antibiotic. The "other antibiotic" proved to be Tegopen 100% of the time because no treatment failures had occurred with Tegopen.
- A final assessment of progress was made two weeks after initiation of Tegopen therapy.

‡The remainder, to equal 100%, consisted of 14 patients (13%) who exhibited no initial bacterial growth. These 14 were all healed, whether given Tegopen or penicillin V-K.

# TEGOPEN®

(cloxacillin sodium)

## -effective therapy for staph infections of the skin and skin structures

#### WARNING:

Serious and occasionally fatal hypersensitivity (anaphylactoid) reactions have been reported in patients on penicillin therapy. Although anaphylaxis is more frequent following parenteral therapy it has occurred in patients on oral penicillins. These reactions are more apt to occur in individuals with a history of sensitivity to multiple allergens.

There have been well documented reports of individuals with a history of penicillin hypersensitivity reactions who have experienced severe hypersensitivity reactions when treated with a cephalosporin. Before therapy with a penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, and other allergens. If an allergic reaction occurs, the drug should be discontinued and the patient treated with the usual agents, e.g., pressor amines, antihistamines, and corticosteroids.

Safety for use in pregnancy has not been established.

#### PRECAUTIONS:

The possibility of the occurrence of superinfections with mycotic organisms or other pathogens should be kept in mind when using this compound, as with other antibiotics. If superinfection occurs during therapy, appropriate measures should be taken.

As with any potent drug, periodic assessment of organ system function, including renal, hepatic, and hematopoietic, should be made during long-term therapy.

#### ADVERSE REACTIONS:

Gastrointestinal disturbances, such as nausea, epigastric discomfort, flatulence, and loose

stools, have been noted by some patients. Mildly elevated SGOT levels (less than 100 units) have been reported in a few patients for whom pretherapeutic determinations were not made. Skin rashes and allergic symptoms, including wheezing and sneezing, have occasionally been encountered. Eosinophilia, with or without overt allergic manifestations, has been noted in some patients during therapy.

#### USUAL DOSAGE:

Adults: 250 mg. q. 6h.

Children: 50 mg./Kg./day in equally divided doses q. 6h. Children weighing more than 20 Kg. should be given the adult dose. Administer on empty stomach for maximum absorption.

**NB: INFECTIONS CAUSED BY GROUP A BETA-HEMOLYTIC STREPTOCOCCI SHOULD BE TREATED FOR AT LEAST 10 DAYS TO HELP PREVENT THE OCCURRENCE OF ACUTE RHEUMATIC FEVER OR ACUTE GLOMERULONEPHRITIS.**

#### SUPPLIED:

Capsules—250 mg. in bottles of 100. 500 mg. in bottles of 100.  
Oral Solution—125 mg./5 ml. in 100 ml. and 200 ml. bottles.

**BRISTOL®**

Bristol Laboratories  
Division of Bristol-Myers Company  
Syracuse, New York 13201

Copyright © 1981, Bristol Laboratories

# Partnership with Arizona medicine for one quarter century!



For 25 years, Camelback Hospitals have maintained a working partnership with Arizona's medical profession in offering eminent psychiatric facilities for the care and treatment of emotionally and mentally ill patients.

## **Services doctors understand & appreciate**

As non-profit community facilities, Camelback Hospitals offer psychiatric services unavailable at most institutions:

- Totally separate programs for adults, young adults, adolescents and older adults.
- Intensive diagnostic and short-term treatment for all age groups.
- Progressive approaches to the treatment of alcohol and drug abuse.
- A special Activity Center with art, music, dance, recreation, occupational therapy and personal effectiveness programs.
- Individual, group and family therapy with special psychodrama sessions.
- Day Treatment Program.

## **A pleasant, different kind of atmosphere**

Patients enjoy bright, sunny buildings, designed for psychiatric treatment and rehabilitation. Special emphasis is placed on providing each patient with a more complete understanding of himself, so that he can participate in his therapy with insight and intelligence.



 **Camelback Hospitals**

Scottsdale Camelback Hospital  
7575 E. Earll Drive  
Scottsdale, AZ 85251  
(602) 941-1108

Phoenix Camelback Hospital  
5055 N. 34th Street  
Phoenix, AZ 85018  
(602) 955-6200





## We've got the prescription for your communications needs.

Mountain Bell has trained a team of specialists in the medical profession. Because doctors and medical professionals have unique communications needs. And their own set of problems.

Our medical specialists understand those problems. They study your daily patient load, staff requirements, and information management areas. They help implement mechanization through time-sharing of computer terminals. And design voice and data communications systems tailored to fit a private practice, or the collective needs of clinics and group practices.

One of the systems we've developed for you is the Horizon® communications system. In addition to the advanced calling features available on larger, more costly PBX equipment, the Horizon system gives you Dial Dictation and Loudspeaker Paging access. Plus Intercom and Speakerphone capabilities. So you minimize time spent by support personnel on placing and receiving phone calls. While speeding exchange of information.

The Horizon communications system is just one example of how our team members can meet the communications needs of your practice. But they can tell you more. Because they've taken the time to learn the medical profession. And they're backed by all the resources of the Bell System.

Let the Mountain Bell specialists in the medical profession give you the remedy to your communications needs.

Call toll-free 1-800-525-2323 (in Colorado, call 1-800-332-2351). Mountain Bell.

\* Registered trademark of AT&T Company.

**The knowledge business**



**When painful spasm  
is the presenting  
symptom...**





# Single Entity Bentyl<sup>®</sup>

(dicyclomine hydrochloride USP)

10 mg. capsules, 20 mg. tablets, 10 mg./5 ml. syrup, 10 mg./ml. injection

## On target for the functional bowel/irritable bowel syndrome\*

### Single entity means

- ⊕ a variety of Bentyl dosage forms (tablets, capsules, syrup, injectable) that lets you tailor the dose to your patient's primary need
- ⊕ freedom to choose and titrate concomitant medication when a psychogenic disorder coexists

### On target means

- ⊕ bioequivalence of oral dosage forms that permits patient's choice—fosters patients' compliance
- ⊕ bioavailability of all dosage forms that encourages therapeutic effect
- ⊕ significant pharmacologic activity that can be demonstrated at the target site in the distal colon (Figure 1)

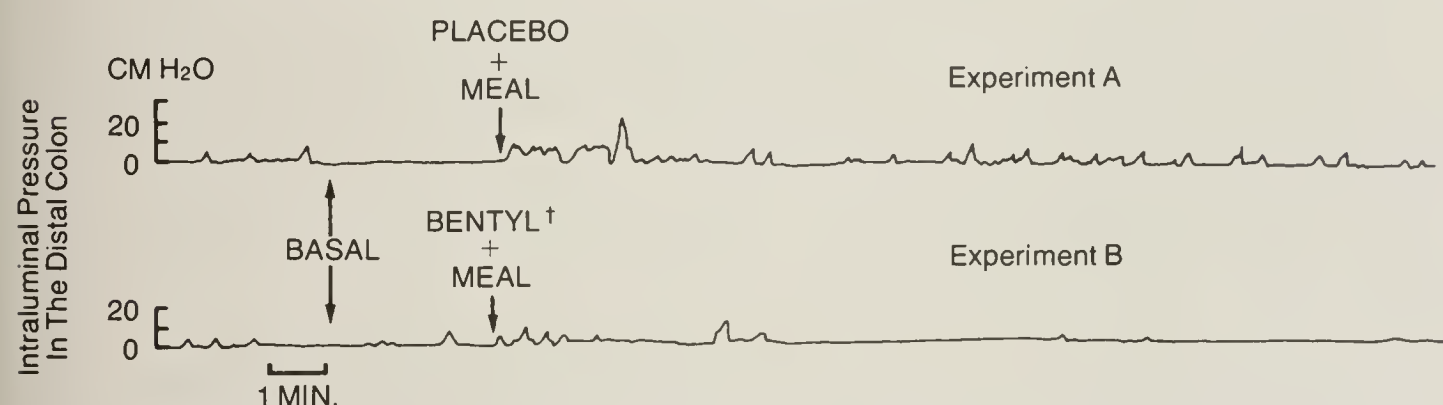


**Fig. 1.** In ten irritable colon patients, the mean motility index for the colonic wave patterns following a meal and intramuscular placebo was calculated at  $86 \pm 28$ . On a separate day, the mean motility index for the colonic wave patterns following a meal plus intramuscular Bentyl was calculated at  $14 \pm 8$ . The decrease in motor activity induced by Bentyl<sup>†</sup> was statistically significant ( $p < 0.05$ ) in spite of the wide range of the standard error of the mean. The above graph illustrates the intraluminal pressure findings in one of the patients typical of the group studied.

from a study by A.R. Chowdhury  
and S.H. Lorber, 1980

\*This drug has been classified "probably" effective for this indication.

<sup>†</sup>Although the dose of Bentyl used to show pharmacologic effect was 50 mg., which is a higher single dose than that permitted in the labeling, the dose was considered justified, since the recommended daily dose of injectable Bentyl is 20 mg. (2 ml.) every 4 to 6 hours. Thus, in 8 hours, a patient could receive a total of 60 mg. I.M. and, at that time, as a result of the sustained plasma levels from the 20 mg. injections at 0 and 4 hours, might show an even higher plasma level than occurs after a single 50 mg. dose. Presumably, the same pharmacologic effect, as shown in Figure 1, would follow. These observations do not constitute evidence of efficacy.

# Merrell

## Bentyl®

(dicyclomine hydrochloride USP)

Capsules, Tablets, Syrup, Injection

AVAILABLE ONLY ON PRESCRIPTION

Brief Summary

### INDICATIONS

Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the following indications as "probably" effective:

For the treatment of functional bowel/irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.

THESE FUNCTIONAL DISORDERS ARE OFTEN RELIEVED BY VARYING COMBINATIONS OF SEDATIVE, REASSURANCE, PHYSICIAN INTEREST, AMELIORATION OF ENVIRONMENTAL FACTORS.

For use in the treatment of infant colic (syrup).

Final classification of the less-than-effective indications requires further investigation.

**CONTRAINDICATIONS:** Obstructive uropathy (for example, bladder neck obstruction due to prostatic hypertrophy); obstructive disease of the gastrointestinal tract (as in achalasia, pyloroduodenal stenosis); paralytic ileus, intestinal atony of the elderly or debilitated patient; unstable cardiovascular status in acute hemorrhage, severe ulcerative colitis; toxic megacolon complicating ulcerative colitis; myasthenia gravis.

**WARNINGS:** In the presence of a high environmental temperature, heat prostration can occur with drug use (fever and heat stroke due to decreased sweating). Diarrhea may be an early symptom of incomplete intestinal obstruction, especially in patients with ileostomy or colostomy. In this instance treatment with this drug would be inappropriate and possibly harmful. Bentyl may produce drowsiness or blurred vision. In this event, the patient should be warned not to engage in activities requiring mental alertness such as operating a motor vehicle or other machinery or perform hazardous work while taking this drug. There are rare reports of infants, 6 weeks of age and under, administered dicyclomine hydrochloride syrup, who have evidenced respiratory symptoms (breathing difficulty, shortness of breath, breathlessness, respiratory collapse, apnea), as well as seizures, syncope, asphyxia, pulse rate fluctuations, muscular hypotonia, and coma. The above symptoms have occurred within minutes of ingestion and lasted 20 to 30 minutes. The timing and nature of the reactions suggest that they were a consequence of local irritation and/or aspiration rather than a direct pharmacologic effect. No known deaths or permanent adverse effects have been reported. Bentyl syrup should be used with caution in this age group.

**PRECAUTIONS:** Although studies have failed to demonstrate adverse effects of dicyclomine hydrochloride in glaucoma or in patients with prostatic hypertrophy, it should be prescribed with caution in patients known to have or suspected of having glaucoma or prostatic hypertrophy.

Use with caution in patients with:

Autonomic neuropathy. Hepatic or renal disease. Ulcerative colitis. Large doses may suppress intestinal motility to the point of producing a paralytic ileus and the use of this drug may precipitate or aggravate the serious complication of toxic megacolon.

Hyperthyroidism, coronary heart disease, congestive heart failure, cardiac arrhythmias, and hypertension.

Hiatal hernia associated with reflux esophagitis since anticholinergic drugs may aggravate this condition.

Do not rely on the use of the drug in the presence of complication of biliary tract disease. Investigate any tachycardia before giving anticholinergic (atropine-like) drugs since they may increase the heart rate. With overdosage, a curare-like action may occur.

**ADVERSE REACTIONS:** Anticholinergics/ antispasmodics produce certain effects which may be physiologic or toxic depending upon the individual patient's response. The physician must delineate these. Adverse reactions may include xerostomia; urinary hesitancy and retention; blurred vision and tachycardia; palpitations; mydriasis; cycloplegia; increased ocular tension; loss of taste; headache; nervousness; drowsiness; weakness; dizziness; insomnia; nausea; vomiting; impotence; suppression of lactation; constipation; bloated feeling; severe allergic reaction or drug idiosyncrasies including anaphylaxis; urticaria and other dermal manifestations; some degree of mental confusion and/or excitement, especially in elderly persons; and decreased sweating. With the injectable form there may be a temporary sensation of fight-headedness and occasionally local irritation.

**DOSEAGE AND ADMINISTRATION:** Dosage must be adjusted to individual patient's needs.

**Usual Dosage**

Bentyl 10 mg. capsule and syrup: *Adults:* 1 or 2 capsules or teaspoonfuls syrup three or four times daily. *Children:* 1 capsule or teaspoonful syrup three or four times daily. *Infants:* ½ teaspoonful syrup three or four times daily. (Dilute with equal volume of water.)

Bentyl 20 mg.: *Adults:* 1 tablet three or four times daily.

Bentyl Injection: *Adults:* 2 ml. (20 mg.) every four to six hours intramuscularly only.

NOT FOR INTRAVENOUS USE.

**MANAGEMENT OF OVERDOSE:** The signs and symptoms of overdose are headache, nausea, vomiting, blurred vision, dilated pupils, hot, dry skin, dizziness, dryness of the mouth, difficulty in swallowing, CNS stimulation. Treatment should consist of gastric lavage, emetics, and activated charcoal. Barbiturates may be used either orally or intramuscularly for sedation but they should not be used if Bentyl with Phenobarbital has been ingested. If indicated, parenteral cholinergic agents such as Urecholine® (bethanecol chloride USP) should be used.

Product Information as of July, 1980

Injectable dosage forms manufactured by  
CONNAUGHT LABORATORIES, INC.  
Swiftwater, Pennsylvania 18370 or  
TAYLOR PHARMACAL COMPANY  
Decatur, Illinois 62525 for  
MERRELL-NATIONAL LABORATORIES  
Division of Richardson-Merrell Inc.  
Cincinnati, Ohio 45215, U.S.A.

**Merrell**

1-6707 (Y175C) MNQ-443R

# WHY LEASE?

Simple. You can maintain cash flow, there's no down payment and investment tax credit is available.

Call LEASING OF PHOENIX for free quotation and competitive rates on:

- office equipment
- medical and dental equipment
- telephone systems
- security systems
- computers
- word processors
- copiers
- boats, marine
- corporate aircraft
- autos, individual or fleet

**CALL LEASING OF PHOENIX**  
**602/990-1624**

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully bound books. Choose from 30 different colors of durable Library Buckram

**\$13.50 per volume, (name imprint.75)**

**\$15.00 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

**Free local pickup and delivery on 10 volumes or more**

Minimum order is \$25.00

## ROSWELL BOOKBINDING

**2614 North 29th Avenue**  
**Phoenix, Arizona 85009**  
**272-9338**





Carl T. Kirchmaier, M.D.

Medical Director

In the equitable classification of risks for life and health insurance applicants, a company's professional is their Medical Director. He is the link between the home office underwriter and the applicant's own physician. It is his confidential evaluation of health information furnished by you which helps to determine the proper issue classification, so that all policy-owners pay their fair share.

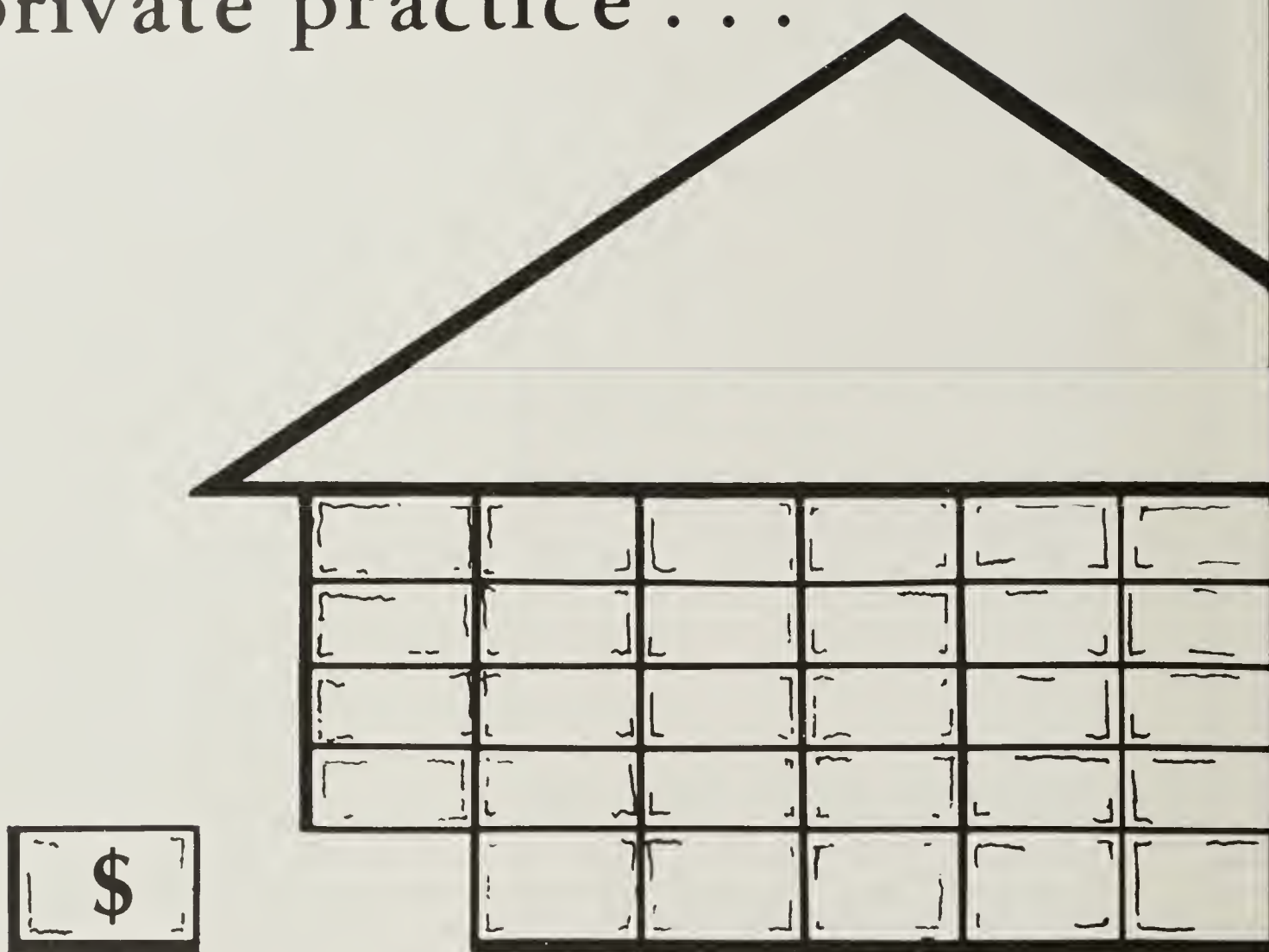
We at HBA Life have prided ourselves on our close rapport with the Arizona Medical profession since our founding in 1944.

Dr. Kirchmaier is an important part of that relationship.

**THE HBA**  **LIFE INSURANCE COMPANY**

1337 N. FIRST ST. (P.O. BOX 1272), PHOENIX, AZ 85001 (602) 258-4885

Billing is the  
Cornerstone of  
every successful  
private practice . . .



*"We put it in place."*

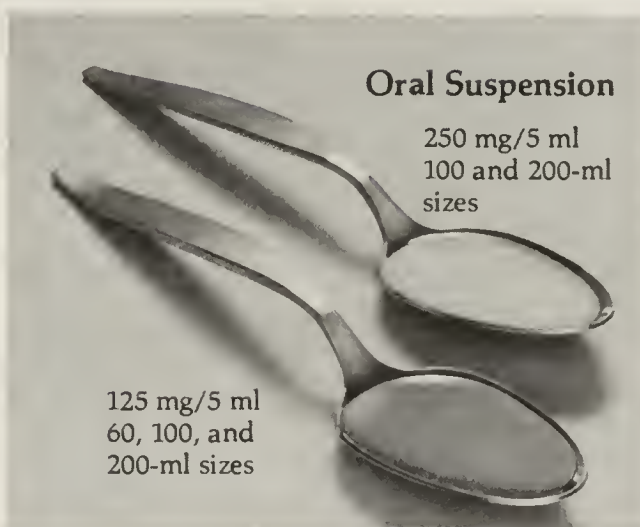


**The Anesthesia Office, Inc.**

Main Office: Post Office Box 39429, Phoenix, Arizona 85069 (602) 242-1908



# easy to take



# Keflex®

cephalexin

Additional information available  
to the profession on request.



**Dista Products Company**  
Division of Eli Lilly and Company  
Indianapolis, Indiana 46285  
Mfd. by Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630

# Another good reason to insure with **MICA** is YOUR ownership of **MICA**.

The Company is owned by the physicians who are MICA policyholders.

MICA exists for the benefit of the physicians of Arizona. Its basic objective is to provide a stable and continuous medical malpractice insurance facility charging reasonable rates for the coverages offered.

For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402

**MICA MICA MICA**

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association



# Examine Me.

During the past several years, I have heard my name mentioned in movies, on television and radio talk shows, and even at Senate subcommittee sessions. And I have seen it repeatedly in newspapers, magazines, and yes, best-sellers. Lately, whenever I see or hear the phrases “overmedicated society,” “overuse,” “misuse,” and “abuse,” my name is one of the reference points. Sometimes even *the* reference point.

These current issues, involving patient compliance or dependency-proneness, should be given careful scrutiny, for they may impede my overall therapeutic usefulness. As you know, a problem almost always involves improper usage. When I am prescribed and taken correctly, I can produce the effective relief for which I am intended.

Amid all this controversy, I ask you to reflect on and re-examine my merits. Think back on the patients in your practice who have been helped through your clinical counseling and prudent prescriptions for me. Consider your patients with heart problems, G.I. problems, and interpersonal problems who, when their anxiety was severe, have been able to benefit from the medication choice you’ve made. Recall how often you’ve heard, as a result, “Doctor, I don’t know what I would have done without your help.”

You and I can feel proud of what we’ve done together to reduce excessive anxiety and thus help patients to cope more successfully.

If you examine and evaluate me in the light of your own experience, you’ll come away with a confirmation of your knowledge that I *am* a safe and effective drug when prescribed judiciously and used wisely.

For a brief summary of product information on Valium (diazepam/Roche) ©, please see the following page. Valium is available as 2-mg, 5-mg and 10-mg scored tablets.

# Valium® diazepam/Roche

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety, symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy). The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

**Contraindications:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other anti-depressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

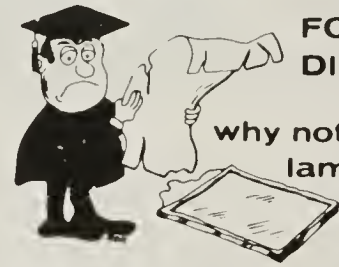
**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

**Supplied:** Valium® (diazepam/Roche) Tablets, 2 mg, 5 mg and 10 mg—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10. Prescription Paks of 50, available in trays of 10.

Roche Laboratories  
Division of Hoffmann-La Roche Inc.  
Nutley, New Jersey 07110

YOU WORKED HARD  
FOR THAT  
DIPLOMA..



it will last a lifetime....

## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.

7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

## Valley Prosthetics, Inc.

*announces that*

**Vernon H. Lehde**

**Certified Prosthetist—Orthotist**

has recently joined the staff of  
Valley Prosthetics with  
55 years past experience, adding  
**Orthopedic Appliances**

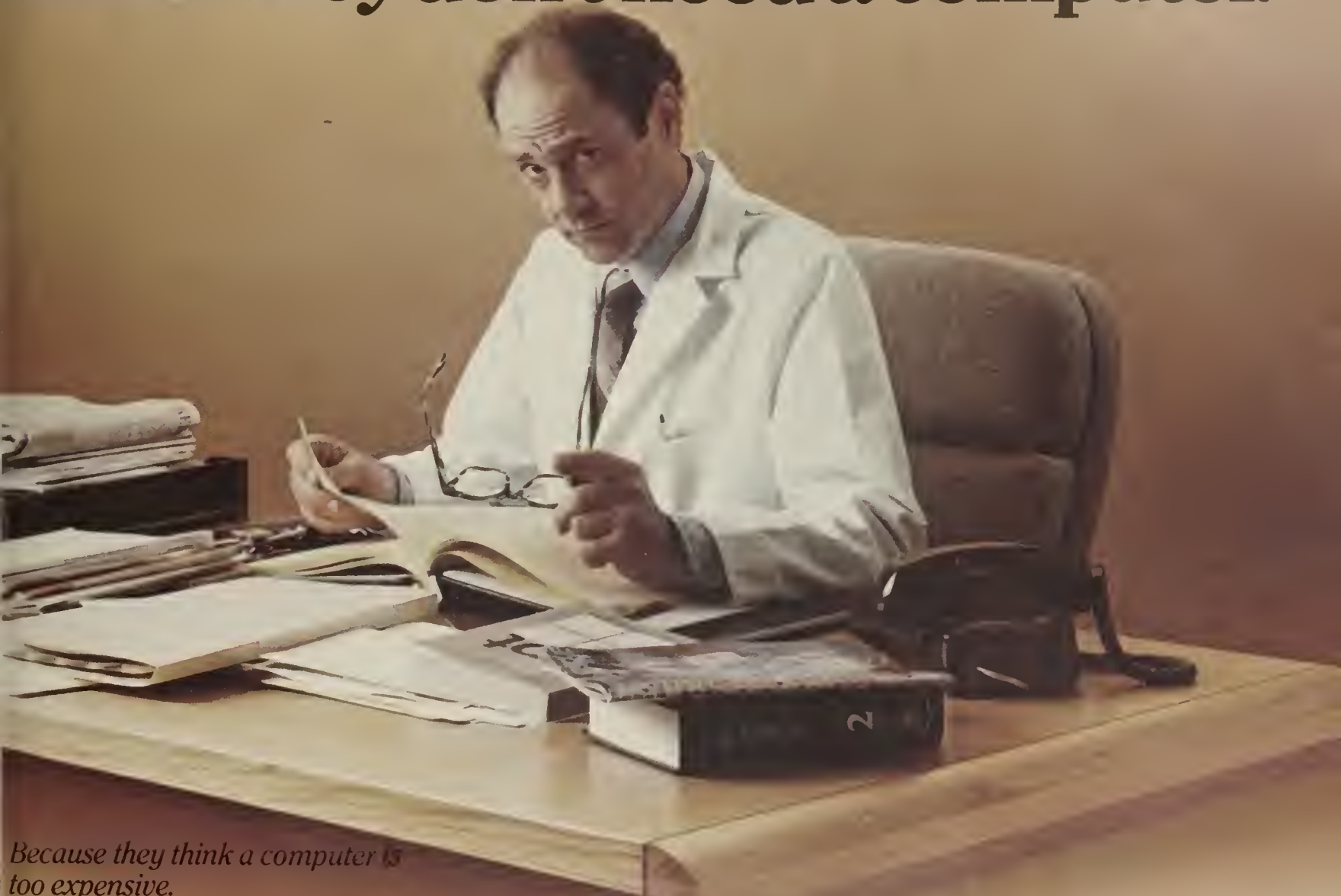
to its other services of  
**Artificial Limbs, Medical Equipment  
Rental and Handicap Service.**

**Telephone for appointment-894-0145  
734 E. Broadway, Tempe, Arizona**

ROCHE



# We're looking for doctors who think they don't need a computer.



*Because they think a computer is too expensive.*

The Sequoia Medical System™ can pay for itself:

- Increased collections
- Decreased receivables
- Improved staff efficiency

*Because they think they already have firm control of their billing.*

The Sequoia Medical System automatically processes billing paperwork:

- Patient statements
- Third party claims
- Collection letters

*Because they think they have easy access to vital practice data.*

The Sequoia Medical System provides information immediately:

- Aged receivable reports
- Procedure and diagnosis analysis

- Daily production and revenue analysis
- On-line access to 4½ million medical journal articles in the National Library of Medicine
- And many other forms of essential data

*Because they think a computer is administratively disruptive.*

The Sequoia Medical System is designed to blend smoothly into solo and small group practices:

- Easy to use
- Pre-programmed, turn-key system

- Includes training, installation, local service and support.

*Because they haven't seen a Sequoia Medical System.*

Sequoia can provide more time for health care in your practice. While it's taking care of business... you're taking care of patients.

Start looking into the benefits of a computer today by calling Sequoia Group. Call toll free (800) 227-2360; in California (800) 772-2655... or write for our brochure.

## SEQUOIA GROUP™

I N C O R P O R A T E D

1100 Larkspur Landing Circle, Larkspur, CA 94939

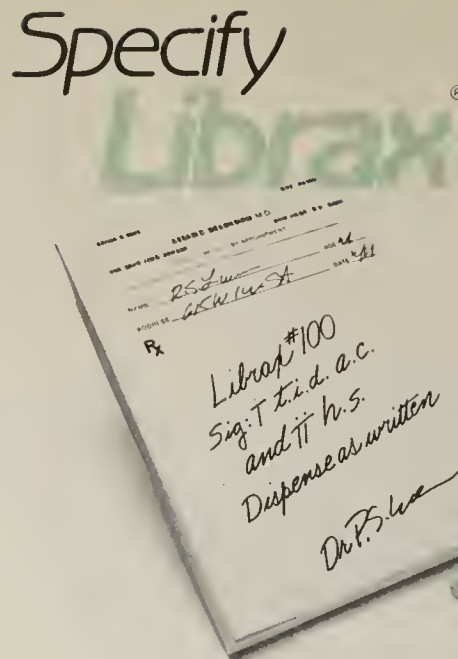
Atlanta, Birmingham, Boston, Buffalo, Charlotte, Chicago, Cleveland, Columbus, Dallas, Denver, Detroit, Hartford, Houston, Indianapolis, Irvine, Kansas City, Los Angeles, Memphis, Miami, Minneapolis, Nashville, New Orleans, New York City, Norfolk, Oklahoma City, Philadelphia, Phoenix, Pittsburgh, Portland, Salt Lake City, San Diego, San Francisco, Seattle, St. Louis, Tampa, Washington, D.C.

# Ready to teach home nursing, first aid, parenting, child care, water safety, CPR.

Red Cross:  
Ready for a new century.



A Public Service of This Magazine  
& The Advertising Council



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows "Possibly" effective as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis. Final classification of the less-than-effective indications requires further investigation.

**Contraindications:** Glaucoma, prostatic hypertrophy, benign bladder neck obstruction, hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage, withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.

As with all anticholinergics, inhibition of lactation may occur.

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially, increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression, suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants, causal relationship not established.

**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated, avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction, changes in EEG patterns may appear during and after treatment, blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.



Roche Products Inc.  
Manati, Puerto Rico 00701



# In Duodenal ULCER\* MANAGEMENT

The proven antispasmodic and antisecretory actions of Quarzan® (clidinium bromide/Roche) for the ulcer

The well-known antianxiety action of Librium® (chlordiazepoxide HCl/Roche) for the accompanying anxiety found in many ulcer patients

Specify *Adjunctive* **Librax**®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br

*Antianxiety/Antisecretory/Antispasmodic*

Librax has been evaluated as possibly effective for this indication. Please see brief summary of prescribing information on facing page.

Photograph of simulated gastric hypersecretion

Although weight loss achieved in a weight control program varies from patient to patient, this simulated sequence of a professional model illustrates dramatically the benefits of a successful weight loss program.



**ceeg** getting there...



...takes dietary restriction, regular exercise, behavior modification, and sometimes the addition of an effective anorectic.

prescribe

# Tenuate® Dospan®<sup>IV</sup> (diethylpropion hydrochloride NF)

75 mg. controlled-release tablets

the #1 prescribed anorectic

## An effective short-term adjunct in an indicated weight loss program

Overweight patients in certain diagnostic categories often require strict obesity control. Diethylpropion hydrochloride has been reported useful in obese patients with certain complications. While it is not suggested that Tenuate in any way reduces these complications in the overweight, it may have a useful place as a short-term adjunct in a prescribed dietary regimen. Tenuate should not be administered to patients with severe hypertension; see additional Warnings and Precautions on this page.

## In uncomplicated obesity

Many patients, on the other hand, present with excess fat but no disease. While this condition is often termed uncomplicated obesity, complications of both a social and a psychologic nature may be distressingly real for the patients. In these cases, a short-term regimen of Tenuate can help reinforce your dietary counsel during the important early weeks of an indicated weight loss program.

## Clinical effectiveness

The anorectic effectiveness of diethylpropion hydrochloride is well documented. No less than 18 separate double-blind, placebo-controlled studies attest to its usefulness in daily practice.<sup>1</sup> And the unique chemistry of Tenuate provides "...anorectic potency with minimal overt central nervous system or cardiovascular stimulation."<sup>2</sup> Compared with the amphetamines, diethylpropion has minimal potential for abuse.

**Tenuate—it makes sense.  
And it's responsible medicine.**

# Merrell

Tenuate®<sup>IV</sup>  
(diethylpropion hydrochloride NF)

Tenuate Dospan®<sup>IV</sup>  
(diethylpropion hydrochloride NF)  
controlled-release

AVAILABLE ONLY ON PRESCRIPTION

### Brief Summary

**INDICATION:** Tenuate and Tenuate Dospan are indicated in the management of exogenous obesity as a short-term adjunct (a few weeks) in a regimen of weight reduction based on caloric restriction. The limited usefulness of agents of this class should be measured against possible risk factors inherent in their use such as those described below.

**CONTRAINDICATIONS:** Advanced arteriosclerosis, hyperthyroidism, known hypersensitivity or idiosyncrasy to the sympathomimetic amines, glaucoma. Agitated states. Patients with a history of drug abuse. During or within 14 days following the administration of monoamine oxidase inhibitors, (hypertensive crises may result).

**WARNINGS:** If tolerance develops, the recommended dose should not be exceeded in an attempt to increase the effect, rather, the drug should be discontinued. Tenuate may impair the ability of the patient to engage in potentially hazardous activities such as operating machinery or driving a motor vehicle; the patient should therefore be cautioned accordingly. **Drug Dependence:** Tenuate has some chemical and pharmacologic similarities to the amphetamines and other related stimulant drugs that have been extensively abused. There have been reports of subjects becoming psychologically dependent on diethylpropion. The possibility of abuse should be kept in mind when evaluating the desirability of including a drug as part of a weight reduction program. Abuse of amphetamines and related drugs may be associated with varying degrees of psychologic dependence and social dysfunction which, in the case of certain drugs, may be severe. There are reports of patients who have increased the dosage to many times that recommended. Abrupt cessation following prolonged high dosage administration results in extreme fatigue and mental depression; changes are also noted on the sleep EEG. Manifestations of chronic intoxication with anorectic drugs include severe dermatoses, marked insomnia, irritability, hyperactivity, and personality changes. The most severe manifestation of chronic intoxications is psychosis, often clinically indistinguishable from schizophrenia. **Use in Pregnancy:** Although rat and human reproductive studies have not indicated adverse effects, the use of Tenuate by women who are pregnant or may become pregnant requires that the potential benefits be weighed against the potential risks. **Use in Children:** Tenuate is not recommended for use in children under 12 years of age.

**PRECAUTIONS:** Caution is to be exercised in prescribing Tenuate for patients with hypertension or with symptomatic cardiovascular disease, including arrhythmias. Tenuate should not be administered to patients with severe hypertension. Insulin requirements in diabetes mellitus may be altered in association with the use of Tenuate and the concomitant dietary regimen. Tenuate may decrease the hypotensive effect of guanethidine. The least amount feasible should be prescribed or dispensed at one time in order to minimize the possibility of overdose. Reports suggest that Tenuate may increase convulsions in some epileptics. Therefore, epileptics receiving Tenuate should be carefully monitored. Titration of dose or discontinuance of Tenuate may be necessary.

**ADVERSE REACTIONS:** **Cardiovascular:** Palpitation, tachycardia, elevation of blood pressure, precordial pain, arrhythmia. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride. **Central Nervous System:** Overstimulation, nervousness, restlessness, dizziness, jitteriness, insomnia, anxiety, euphoria, depression, dysphoria, tremor, dyskinesia, mydriasis, drowsiness, malaise, headache; rarely psychotic episodes at recommended doses. In a few epileptics an increase in convulsive episodes has been reported. **Gastrointestinal:** Dryness of the mouth, unpleasant taste, nausea, vomiting, abdominal discomfort, diarrhea, constipation, other gastrointestinal disturbances. **Allergic:** Urticaria, rash, ecchymosis, erythema. **Endocrine:** Impotence, changes in libido, gynecomastia, menstrual upset. **Hematopoietic System:** Bone marrow depression, agranulocytosis, leukopenia. **Miscellaneous:** A variety of miscellaneous adverse reactions has been reported by physicians. These include complaints such as dyspnea, hair loss, muscle pain, dysuria, increased sweating, and polyuria.

**DOSAGE AND ADMINISTRATION:** Tenuate (diethylpropion hydrochloride) One 25 mg. tablet three times daily, one hour before meals, and in the evening if desired to overcome night hunger. Tenuate Dospan (diethylpropion hydrochloride) controlled-release. One 75 mg. tablet daily, swallowed whole, in the morning. Tenuate is not recommended for use in children under 12 years of age.

**OVERDOSAGE:** Manifestations of acute overdose include restlessness, tremor, hyperreflexia, rapid respiration, confusion, assaultiveness, hallucinations, panic states. Fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Overdose of pharmacologically similar compounds has resulted in fatal poisoning, usually terminating in convulsions and coma. Management of acute Tenuate intoxication is largely symptomatic and includes lavage and sedation with a barbiturate. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendation in this regard. Intravenous phentolamine (Regitine®) has been suggested on pharmacologic grounds for possible acute, severe hypertension, if this complicates Tenuate overdose.

Product Information as of January, 1980

MERRELL-NATIONAL LABORATORIES Inc.  
Cayey, Puerto Rico 00633

Direct Medical Inquiries to  
MERRELL DOW PHARMACEUTICALS INC.  
Subsidiary of The Dow Chemical Company  
Cincinnati, Ohio 45215  
Licensor of Merrell®

**References:** 1. Citations available on request from Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio 45215. 2. Hoekenga, M. T. et al: A comprehensive review of diethylpropion hydrochloride. In: Central Mechanisms of Anorectic Drugs, S. Garattini and R. Samanin, Ed., New York: Raven Press, 1978, pp. 391-404.

**90th Annual Meeting of the Arizona Medical Association  
The Pointe Resort Phoenix Arizona**

# **FIVE DAYS IN MAY:**

- **ArMA BUSINESS -**

Make your voice heard through personal attendance or a discussion with your delegates.

**20**

- **SPORTS ACTIVITY -**

Tennis and golf tournaments and a 6-mile fun run.

**21**

- **Education -**

More than 40 scientific and commercial exhibits and a quality program of scientific information.

**22**

- **ENTERTAINMENT -**

An International Affair (a gourmet dining experience on Friday nite) plus the President's Reception and Banquet on Saturday featuring songs by the Phoenix Boys Choir. Great music for dancing both nights.

**23**

- **SOCIOECONOMIC INFORMATION -**

Three special programs on Medical Care Rationing, National Preparedness and Physician Participation in the Health Planning Process.

**24**

*Check YOUR calendar. Make plans to attend & pre-register early*

**THE 90TH ANNUAL MEETING OF THE ARIZONA MEDICAL ASSOCIATION  
SEE YOU AT THE POINTE - MAY 20 - 24, 1981!**



## Introduction

The College of Medicine is again honored to contribute material for *Arizona Medicine*. This year the Editor has seen fit to assign two issues to these presentations. Working with Robert M. Anderson, M.D., the faculty have selected areas for presentation which span a wide breadth of current medical topics. As in years past, the emphasis is on newer developments and their practical application.

Should state medical associations publish a medical journal? It is easy to defend the need for a formal and regular means for communicating association business. The distribution of medical information is less clear. There are many publications for us all to read. None save for *Arizona Medicine* focuses on medical information generated in Arizona, nor the illnesses unique to the Southwest. Over the years this emphasis is apparent in the journal's pages. In my view, this is justification enough. The College of Medicine is pleased to remain a participating partner in the continued publication of material in Arizona's own medical journal.

Louis J. Kettel, M.D.  
Dean, College of Medicine

# Lung Toxicity Resulting from Exposure to Nitrogen Dioxide:

## A Possible Occurance Due to Titan Missile Accidents

Robin L. Brey, Medical Student  
John J. Seidenfeld, M.D.

### Abstract

Exposure to the oxides of nitrogen has long been recognized as an occupational hazard. The pulmonary toxicity caused by acute NO<sub>2</sub> exposure has been most often associated with inhalation of silage gas (Silo filler's disease), but has been reported as a risk in other professions as well. In recent months, both the lay press and the medical literature have taken an interest in the problem of toxic NO<sub>2</sub> exposure resulting from missile site accidents. As Arizona is the home of a number of Titan Missile bases, the recognition and treatment of NO<sub>2</sub> exposure has become a problem for Arizona physicians.

What follows is a review of the clinical and experimental literature dealing with the pulmonary toxicity resulting from exposure to the oxides of nitrogen. Major emphasis will be placed on injury resulting from acute exposure, but some of the literature describing chronic, low level exposure (i.e. air pollution studies) will be included.

---

From: Tucson Veterans Administration Medical Center and University of Arizona Health Sciences Center. Reprint requests to John Seidenfeld, M.D., Pulmonary Section (111A), VA Medical Center, South Sixth Avenue, Tucson, Arizona 85723.

### Keywords:

Nitrogen dioxide, Silo filler's disease; Oxides of nitrogen; Silage gas; Chemical pneumonitis; Bronchiolitis obliterans.

### Introduction

In 1804 there appeared, in an obscure medical journal, a case report describing the unhappy plight of a merchant and his dog one hot day after two casks containing nitric acid had spilled. The merchant's storage shed became filled with reddish-brown fumes and both the man and his dog died, within hours, of massive pulmonary edema.<sup>1</sup>

Since this first colorful description of the extensive pulmonary damage possible by inhalation of nitrous fumes, oxides of nitrogen have been recognized as the etiology of much pulmonary pathology, most notably in Silo filler's disease.<sup>1</sup> Exposure to oxides of nitrogen is an occupational hazard in professions other than farming, with reports citing firemen, welders, miners, and missile site personnel as being at risk.<sup>2-5</sup> Air pollution research has incriminated the oxides of nitrogen, along with ozone, sulfur dioxide and benzene, as being responsible for long term pulmonary tissue damage as a result of



chronic exposure.<sup>6,7</sup>

In recent months, both the lay press and the medical literature have taken an interest in the problem of toxic exposure resulting from missile site accidents. As Arizona is the home of a number of Tital Missile bases, the recognition and treatment of NO<sub>2</sub> exposure has become a problem for Arizona physicians. The purpose of this paper is to discuss the clinical presentation which can be extremely varied, review the current thinking regarding pathophysiology and make treatment recommendations.

### Clinical Presentation

Regardless of its source, NO<sub>2</sub> causes the same effects on pulmonary tissue. Clinical presentation is related to the degree of injury, which depends on the intensity and duration of exposure. Nitrogen dioxide, a reddish-brown gas, when inhaled combines with water, and because of its relative insolubility, and therefore, slow rate of hydrolysis, reaches the terminal bronchioles and alveoli before exerting much damage. As a result of this there are few danger signs, i.e. significant burning of the eyes or mucous membranes to warn about the amount of lung injury to come. The NO<sub>2</sub> is trapped at these levels and is completely hydrolyzed there over time to result in a chemically induced pneumonitis and pulmonary edema. There is usually a delay of several hours before onset of significant symptoms, corresponding at least in part to the time required for significant amounts of NO<sub>2</sub> to be hydrolyzed, but with exposures to extremely high concentrations (well over hundreds of parts per million) death may occur immediately from asphyxia.

It is widely held that the pulmonary response to NO<sub>2</sub> is biphasic in character. Stage I has been described as one of acute pulmonary edema with a delay of onset of as much as thirty-six hours.<sup>8</sup> Since we now have more information on patients with varying degrees of exposure, it is clear that not all patients exhibiting initial symptoms suffer pulmonary edema.<sup>5</sup> It seems useful, then, to divide Stage I into three subsets corresponding to degrees of exposure. Stage I represents the initial and potentially reversible phase. As we will see later, reversibility is dependent on treatment in cases of moderate and severe exposure.<sup>9</sup>

### Minimal Exposure

Minimal exposure results in a mild acute tracheobronchitis, a dry, non-productive cough and mild conjunctival irritation. These symptoms last approximately two days and resolve spontaneously. Laboratory studies, chest radiograph and pulmonary function testing will all be normal.<sup>9,10</sup>

### Moderate Exposure

Moderate exposure yields a bronchitis and focal bronchopneumonia. Initially cough, dyspnea, cyanosis, fatigue, chest pain, nausea, vomiting, somnolence and loss of consciousness may occur. Death may occur with the initial exposure, but symptoms usually resolve within forty-eight to seventy-two hours and are followed by resolution of symptoms lasting at least two to three weeks.

Methemoglobinemia may occur from exposure to the oxides of nitrogen. This is sometimes in amounts significant enough to cause cyanosis, but requires treatment only if severe enough to cause stupor or coma (blood concentrations far in excess of 20%-30%).<sup>11</sup>

Laboratory will demonstrate a leukocytosis, hypoxia and hypocapnia. The chest radiograph may be normal, show pneumonia or demonstrate non-cardiac pulmonary edema. Pulmonary function testing may demonstrate variable results.<sup>12</sup> Methemoglobin levels may be drawn if cyanosis is present (levels below those necessary to cause cyanosis are clinically insignificant).<sup>11</sup> Sputums will be negative unless, of course, there is a bacterial superinfection.<sup>9,10</sup>

### Severe Exposure

Severe exposure results in overwhelming asphyxia and immediate death or severe pulmonary edema after the delay from initial exposure already mentioned. Along with pulmonary edema, these patients may have a severe metabolic acidosis caused by nitrous and nitric acid as well as a lactic acidosis caused by hypoxia. The hypotension seen in these patients is attributable, in part, to the vasodilatory effects of nitrate.<sup>9</sup>

Laboratory is similar to that seen with moderate exposure, except that the chest radiograph will always demonstrate non-cardiac pulmonary edema, and pulmonary function testing will usually display a restrictive pattern.<sup>12</sup>

### Stage II

Stage II may occur from two weeks to as late as six months, without re-exposure. It may occur after mild initial symptoms, or after an asymptomatic period following resolution of initial symptoms.<sup>10</sup> Stage II is generally heralded by fever and respiratory distress. Chest radiograph at this time shows a miliary mottling throughout the lung fields. Lung biopsy would demonstrate a focal, organizing, peribronchial pneumonia with endobronchial filling and marked narrowing of the lumen consistent with bronchiolitis fibrosa obliterans.<sup>13</sup> Yockey demonstrated the earliest signs of Stage II to be hypoxia without symptoms of respiratory difficulty and showed arterial blood gases to be the sensitive indicator of it.<sup>5</sup>

It is important to note that a patient's initial exposure might have been totally asymptomatic and his/her first entry into the health care system might well be in Stage II. Without the history of NO<sub>2</sub> exposure, the problems of differential diagnosis are clear and include the spectrum of the adult respiratory distress syndrome.

Morrissey, et al.<sup>9</sup> described the case of a 21 year old who was exposed to silage gas while helping on a friend's farm one week-end, and got over the initial exposure without treatment, only to develop severe respiratory distress three weeks later. Chest radiograph showed pulmonary edema and lung biopsy was consistent with an obstructive pneumonia. Failure to inquire about non-occupational activities (silo filling) lead to delay of diagnosis and initial treatment with antibiotics without



improvement in symptoms. Treatment with steroids was begun six days after admission, when the history of silo exposure was obtained. Within twenty-four hours there was improvement in symptoms. Treatment can be delayed or inappropriate unless the etiology of the patient's physical and laboratory findings are understood.

### Pathophysiology

The acute effects of NO<sub>2</sub> toxicity have been known and recorded since at least 1804.<sup>1</sup> In 1956, Lowry and co-workers proposed that the toxic gas associated with silage was nitrogen dioxide.<sup>8</sup> Since then, the pathophysiological effects of NO<sub>2</sub> have been studied in animal models and to some extent humans — both epidemiologically and, in a limited way, experimentally. This literature has concerned itself with the initial effects of acute exposure (Stage I) and the effects of chronic exposure.

In their comprehensive paper on primary pulmonary responses to toxic agents, Witschi and Cote<sup>14</sup> describe the patterns of acute toxic lung injury. They note that although the list of chemicals known to produce lung tissue damage either by blood or inhalation is seemingly endless, many of these agents cause damage which follow a similar pattern.

In addition, they point out that chemical agents may affect the lung causing damage in one or more of three areas. The alveolar surface may be affected by an abnormal leakage of fluids (edema) or by the failure of clearance mechanisms designed to remove fluids. The interstitial tissue may be affected by an abnormal production or redistribution of tissue yielding fibrosis or emphysema, respectively. Thirdly, the five main cell types of the alveolar zone may be affected to a greater or lesser degree, that is Type I or squamous pneumocytes, Type II or granular pneumocytes (surfactant producing), endothelial cells of pulmonary capillaries, alveolar macrophages and the fibroblasts of the interstitium.

### Specific Response To NO<sub>2</sub>

The lung's initial response to NO<sub>2</sub>, specifically, begins with its low water solubility. This allows more NO<sub>2</sub> (non-injurious in this form) to travel distally before reacting with water to form HNO<sub>2</sub> (nitrous acid) and HNO<sub>3</sub> (nitric acid). In the acid form, damage to pulmonary tissue ensues.

Goldstein, et al.<sup>15</sup> studied the distribution of inhaled NO<sub>2</sub> in Rhesus monkeys using nitrogen-13 dioxide. They found that 50%-60% of the inspired pollutant was retained by the primate during quiet respiration. The chemical measurements of the NO<sub>2</sub> concentration and radioactivity measurements of N-13 concentration in inspired and expired air indicate that much of the NO<sub>2</sub> was converted to HNO<sub>3</sub> within the lungs. Once absorbed, the intermediates of nitrogen-13 dioxide (i.e. solubilized acid forms) remained within the lungs for prolonged periods of time after cessation of exposure. Evidence for this is provided by plotting the pulmonary radioactivity simultaneously with the blood radioactivity over time for both experimental and

control animals. The curve generated by the experimental data demonstrated a slight drop-off in pulmonary and blood radioactivity immediately after exposure was terminated with a plateau at the new level lasting for at least twelve minutes at which time the experiment was terminated. This is in contrast to the Xenon controls who exhibited a rapid drop to baseline, both pulmonary and blood radioactivity levels, six minutes after termination of exposure. The significance of the blood radioactivity measurements is that the damaging effects of NO<sub>2</sub> may not be limited to the lung. Clinical correlations with this experimental finding include the hypotension, metabolic acidosis and methemoglobinemia previously mentioned. This work supports the hypothesis that inspired NO<sub>2</sub> travels to the lung parenchyma where it is converted to HNO<sub>2</sub> and HNO<sub>3</sub>, which remain there even after exposure ceases and interacts with pulmonary tissue directly, as well as extrapulmonary tissue by way of the blood stream.<sup>15</sup>

Fleming, et al.<sup>12</sup> demonstrated dysfunction of small airways following pulmonary injury due to NO<sub>2</sub> in a 58 year old black, non-smoking male after a single occupational exposure. This patient's course was characterized by the classic biphasic presentation. During Stage I, pulmonary edema was present and decreased static compliance gave evidence of a stiff lung. Physiologic studies done in Stage II were suggestive of small airways dysfunction.

These two examples support the notion that it is the distal bronchioles and alveoli which bear the brunt of NO<sub>2</sub> inhalation.

The alveolar Type I cell is the primary target for the injurious effects of the solubilized acids of NO<sub>2</sub>.<sup>16</sup> This is also true of the effects of ozone, but unlike with oxygen toxicity, the capillary endothelial cells are not affected as well.<sup>14</sup> Evans, et al.<sup>16</sup> demonstrated that alveolar Type II cells begin to proliferate in rat lung after exposure to NO<sub>2</sub> and showed with radiolabeled thymidine that by two days, after an initial marked increase, there was a decrease in frequency of Type II cells and a corresponding increase in frequency of Type I cells. These new frequencies remained stable from day two through day fourteen (the end of the study). These findings are supported by others<sup>14,17</sup> and illustrate several important points. Firstly, Type II cells act as pneumocyte stem cells; secondly, they are relatively resistant to the toxic effects of NO<sub>2</sub>; and thirdly, proliferation of Type II cells is an adaptive reparative process which is nonspecific.

The role of exposure mode was studied extensively by Gardner, et al.,<sup>17</sup> using white mice. They found that intermittent exposure to NO<sub>2</sub> may be more toxic than continuous when short term peak concentrations are involved.<sup>17</sup> These findings were supported by the epidemiological research of Speizer, et al.<sup>6</sup> in their prospective study of the health effects of air pollution on children. They studied the pulmonary function test values and the number of pulmonary clinical symptoms (cough, upper respiratory infections) in approximately



8,000 school children. The children were assigned to one of two groups, i.e. living in a home using a gas stove, or an electric stove. Nitrogen dioxide concentrations were found to be four times higher in homes using gas stoves, compared with homes using electric stoves, with intermittent peak values going even higher. The children living in homes using gas stoves had statistically significant lower FEV-1 values and higher rates of pulmonary symptoms as compared to children from homes with electric stoves.

The warnings inherent in any attempt to explain clinical phenomenon with laboratory animal studies apply here. Not only have species differences in sensitivities to NO<sub>2</sub> been described,<sup>18</sup> but studies using human subjects have shown that these differences occur among people as well. In one study, Orhek and co-workers<sup>19</sup> found that some, but not all asthmatics exposed to short-term, low level NO<sub>2</sub> (0.1 ppm for one hour) experienced a moderate bronchial obstruction and marked (100%) increase in their bronchial sensitivity to a broncho-constrictor agent. Orhek postulates a "sensitive" population in whom the effects of NO<sub>2</sub> are more pronounced.

In summary, the research indicates that for humans, after a threshold level of NO<sub>2</sub> exposure has been exceeded (twenty-four hour mean of 940 micrograms per meter<sup>3</sup> or 0.5 ppm),<sup>18</sup> damage to pulmonary tissue occurs distal to the terminal respiratory bronchioles. This occurs by hydrolysis of NO<sub>2</sub> into its water soluble acids which then appear to act on Type I pneumocytes, disrupting their cell membranes and ultimately destroying them. Type II cells proliferate and replenish the Type I cell population, the normal manner in which the lung repairs itself after injury. If repair is abnormal, fibrosis or emphysema may occur. From animal work, this process seems to continue for some time after initial toxic exposure.

### **Treatment**

The management of the patient acutely exposed to NO<sub>2</sub> is similar to the treatment of exposure to other toxins causing similar pulmonary pathology.<sup>12</sup> Initial management at the scene of exposure consists of good first aid measures and common sense. This includes removing the patient from the source of the exposure as quickly as possible. This must be done without endangering the health of rescuers, which seems an obvious point, however, one of the two deaths reported by Yockey, et al.<sup>5</sup> during the McConnell missile accident was of a young man stationed above ground at the time of the accident, who entered the missile complex in an attempt to rescue his co-workers. If any of the toxin has gotten on the skin or clothing of the patient, it should be washed off with water. Oxygen should be provided as soon as possible.<sup>11</sup> The patient should then be transferred to a hospital for careful examination for other injuries, close observation, baseline laboratory and general supportive measures, if necessary.<sup>5,11</sup> Further treatment for the varying degrees of exposure will be outlined below.

### **Minimal Exposure**

With minimal exposure, treatment should be symptomatic only, with observation for at least forty-eight hours.<sup>5,10,11</sup> This observation period is extremely important considering the variable latency period and common dissociation of dyspnea and hypoxia,<sup>5</sup> unsuspected arrhythmias and possibility of sudden death.<sup>11</sup>

Patients should receive complete blood counts, rest and exercise arterial blood gases,<sup>11</sup> pulmonary function testing, chest radiograph and electrocardiogram on admission.<sup>2,10,11</sup> These serve as important baseline values for long term follow-up as well as for monitoring the patient should he/she develop respiratory difficulty after a latency period. The laboratory studies should be repeated if the patient were to become symptomatic at anytime during the observation period. If no symptoms develop, they should be repeated on discharge (with the exception of the EKG), with follow-up to be described in a later section.

### **Moderate and Severe Exposures**

In the treatment of moderate and severe exposures, the general guidelines used for the management of acute respiratory failure from any cause are followed. The first priority of treatment is the relief of hypoxemia.<sup>11</sup> This should be done by the simplest method and the lowest inspired O<sub>2</sub> tension that will achieve the desired result. It is generally accepted that arterial oxygen tensions below 50 to 60 mmHg should be corrected to that level.<sup>11</sup> It is not necessary to achieve normal or supernormal levels of oxygen tension, as levels higher than this result in only minimal degrees of hemoglobin saturation and increase in total blood oxygen content. This is due to the flattening of the oxyhemoglobin dissociation curve at that level. Also, the risk of causing respiratory depression in patients with chronic hypercapnia, as well as direct lung injury resulting from oxygen toxicity, must be considered.<sup>20</sup>

Severely ill patients may not respond satisfactorily to mask O<sub>2</sub> delivery and may require mechanical ventilation. Other indications for ventilation include decreasing PaO<sub>2</sub> over a period of observation, without waiting for hypoxemia to be uncorrectable by mask delivery, visible tiring of the patient due to the work of breathing, or rising CO<sub>2</sub> levels (except where relief of overventilation is due clearly to improvement in pulmonary edema).<sup>20</sup>

Hypotension and shock, which sometimes accompany NO<sub>2</sub> exposure, are generally due to a direct effect of nitrates on the vessels themselves, and not due to hypovolemia.<sup>10,11</sup> Therefore, the patient's fluid status must be assessed carefully before volume expanders are given. If indicated, volume expanders may be given cautiously as in any patient with pulmonary edema complicated by volume depletion. Vasopressor drugs are not contraindicated, and may be necessary to correct normovolemic shock.<sup>11</sup>

The cyanosis of methemoglobinemia usually



disappears within twenty-four to seventy-two hours after exposure. No therapy is required unless concentrations exceed 20%-30%. If therapy is indicated, methylene blue, 1 to 2 mg/kg of body weight given IV over a five minute period in a 1% solution is the treatment of choice. The total dose may be repeated as necessary, not to exceed 7 mg/kg, since the toxic effects of dyspnea, precordial pain, restlessness, apprehension, a sense of oppression and fibrillar tremors may occur. The metabolic acidosis which may occur as a result of nitric or lactic acids should be corrected.<sup>11</sup>

Although some authors hold that there is no rational for the use of corticosteroids in the acute phase of NO<sub>2</sub> toxicity,<sup>12</sup> many others recommend their use.<sup>5,8,10,12</sup> It is thought by some that steroids temper the lung injury resulting from NO<sub>2</sub> exposure, possibly by suppressing the proliferative cellular phase of inflammatory bronchitis.<sup>5</sup> Horvath, et al.<sup>10</sup> recommend that steroids be continued for eight weeks. Relapse with early discontinuation of therapy has been well documented.<sup>9,10</sup> The use of antibiotics prophylactically is unclear.<sup>10</sup>

### Follow Up

Any patient exposed to NO<sub>2</sub> should be followed closely for at least six weeks upon discharge from the hospital.<sup>10</sup> Yockey found that four asymptomatic patients with normal blood gases at the time of exposure and at one week follow-up were hypoxic, but not symptomatic at two week follow-up. All of these patients were given a one week course of prednisone with resolution of the arterial blood gases to normal. He postulates that he might have discovered the second phase of injury early in these patients, noting that blood gases are a sensitive indicator of the second stage of disease.<sup>5</sup> The dyspnea/hypoxia discrepancy in these four patients is of particular note and supports the notion that weekly follow up with clinical exam and arterial blood gases is important even in asymptomatic patients. Further testing should be performed (pulmonary function testing, complete blood count, and chest radiograph) if hypoxia is detected or is clinically indicated.<sup>5</sup>

Treatment for the patient with severe symptoms of Stage II is as for moderate to severe initial exposure, that is, general supportive measures and steroids.<sup>10</sup> As Yockey pointed out, it may be possible to prevent Stage II in its severe form with early detection and treatment with steroids.<sup>5</sup>

### Summary

Finally, a few points need to be emphasized. To make this diagnosis, as is so true with other disease processes, one must think of it. Most patients experience no long term sequelae, but thirty percent of all those acutely exposed to any level of NO<sub>2</sub> die as a result of the exposure.<sup>10</sup> This figure is especially alarming when one remembers that NO<sub>2</sub> induced injury is a preventable disease. The most important factor in the prevention of NO<sub>2</sub> poisoning seems to be education.<sup>10</sup>

Education is an important factor for the people working in areas where the potential for exposure is high, as well as for the medical community responsible for their health care. Workers should have knowledge of job hazards, proper maintenance, first-aid, clean-up procedures, and use of respiratory protective equipment. They should also be aware of the initial symptoms of toxic exposure and be encouraged to seek medical attention were these to occur.<sup>10</sup> The medical community must be alerted to this problem and be able to evaluate persons exposed to NO<sub>2</sub> and provide proper treatment. Included in this is a good disaster plan were a large missile accident to occur.

Efforts in this regard have been initiated in the Tucson area by Davis Monthan Air Force Base. They have distributed information about NO<sub>2</sub> exposure and treatment to the Emergency Rooms throughout the vicinity. A state-wide disaster plan is already in effect, to be initiated by Davis Monthan Air Force Base Hospital, were a massive accident to occur.

### References

1. Ramirez RJ: First death from nitrogen dioxide fumes. *JAMA* 229(9):1181-82, Aug 26, 1974.
2. Lindqvist T: Nitrous gas poisoning among welders using acetylene flame. *Acta Med Scan* 118,210, 1944.
3. Muller B: Nitrogen dioxide intoxication after a mining accident. *Respiration* 26,249, 1969.
4. Tse RL, Brockman AA: Nitrogen toxicity: Report of four cases in firemen. *JAMA* 212:1341-44, 1970.
5. Yocky C, Eden B, Byrd R: The McConnell missile accident. *JAMA* 244(11):1221-23, 1980.
6. Speizer F, Ferris B, Bishop Y, Spengler J: Respiratory disease rates and pulmonary function in children associated with NO<sub>2</sub> exposure. *Am Rev Respir Dis* 121(1):3-10, 1980.
7. Mustafa M, Tierney D: Biochemical and metabolic changes in the lung with oxygen, ozone, and nitrogen dioxide. In: *Lung Disease State of the Art* Murry J (ed), American Lung Association, New York, New York, Dec. 1978, pp 275-304.
8. Lowry T, Schuman LM: "Silo filler's disease": A syndrome caused by NO<sub>2</sub>. *JAMA* 162:153-60, 1956.
9. Morrissey W, Gould I, Carrington C, Gaensler E: Silo filler's disease. *Respiration* 32(1):81-92, 1975.
10. Horvath E, doPico G, Barbee R, Dickie H: Nitrogen dioxide-induced pulmonary disease: Five new cases and a review of the literature. *JOM* 20(2):103-10, Feb 1978.
11. Jones R: Acute and accidental exposures to irritant gases. In: *Pulmonary Diseases and Disorders* Fishman A, (ed), McGraw-Hill, New York, ©1980, pp 794-799.
12. Fleming GM, Chester EH, Montenegro HD: Dysfunction of small airways following pulmonary injury due to nitrogen dioxide. *Chest* 75:720-21, 1979.
13. Spencer H: *Pulmonary Pathology* W.B. Saunders Company, Philadelphia, Toronto, ©1977, pp 660-662.
14. Witschi H, Cote M: Primary pulmonary responses to toxic agents. *CRC Crit Rev Toxicol* 5(1):23-66, May 1977.
15. Goldstein A, Peek N, Parks N, Hines H, Steffy E, Tarkington B: Rate and distribution of inhaled NO<sub>2</sub> in rhesus monkeys. *Am Rev Respir Dis* 115(3):403-12, March 1977.
16. Evans M, Cabral L, Stephens R, Freeman G: Transformation of alveolar type II cells to type I cells following exposure to NO<sub>2</sub>. *Exp Mol Pathol* 22(1):142-150, Feb 1975.
17. Gardner DE: Influence of exposure mode on toxicity of NO<sub>2</sub>. *Environ Health Perspect* 30:23-9, Jun 1979.
18. Dawson J: Health effects of inhalation of ambient concentrations of NO<sub>2</sub>. *Am Rev Respir Dis* 120(2):281-92, Aug 1979 (editorial).
19. Orhek J, Massari JP, Gayland P, Grimaud C, Charpin J: Effect of short-term, low level NO<sub>2</sub> exposure on bronchial sensitivity of asthmatic patients. *J Clin Invest* 57(2):301-7, Feb 1976.
20. Moser KM: Management of respiratory failure. In: *Principles of Internal Medicine*. Harrison TR, (ed), McGraw-Hill, New York ©1977, pp 1414-1419.



# Intravenous Cerebral Angiography:

## Early Clinical Experience

Raymond F. Carmody, M.D.  
Janice R. L. Smith, M.D.  
Joachim F. Seeger, M.D.  
Philip R. Weinstein, M.D.

### Introduction

Atherosclerotic cerebrovascular disease is an increasingly significant problem in our aging society and numerous modalities have been developed for its evaluation. Non-invasive methods of studying the extracranial cerebral vessels, such as ophthalmoscopy, oculoplethysmography, and ultrasonography, have been helpful as screening devices, but have had serious limitations. Only selective transarterial angiography has provided consistently accurate and detailed information on the cervicocerebrovascular system. Unfortunately, conventional angiography is an expensive, time-consuming procedure requiring hospitalization and is not without risk to the patient. Well recognized complications include cerebral infarction as well as hematoma formation and thrombosis at the puncture site.

A new less-invasive procedure, intravenous angiography with digital radiography, has been developed which minimizes patient risk while providing high quality images of the cervical and intracranial vascular structures (Figure 1).

From: University of Arizona Health Science Center, Department of Radiology, Tucson, Arizona 85724. Reprint requests to Dr. Carmody.

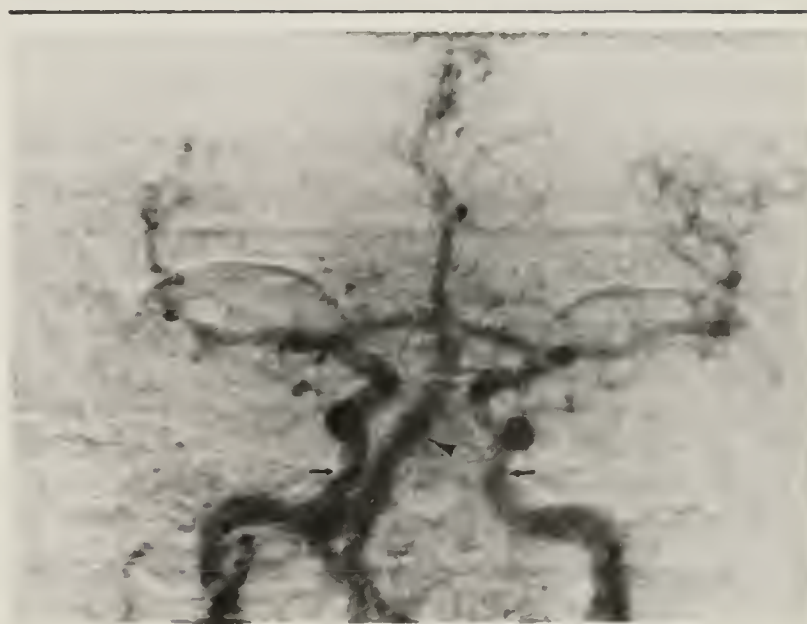


Figure 1  
Normal intravenous cerebral angiogram, AP intracranial view. Internal carotid arteries (arrows) and basilar artery (arrowhead) are well seen.

### Technique

The intravenous angiography system developed at the University of Arizona Health Sciences Center has been

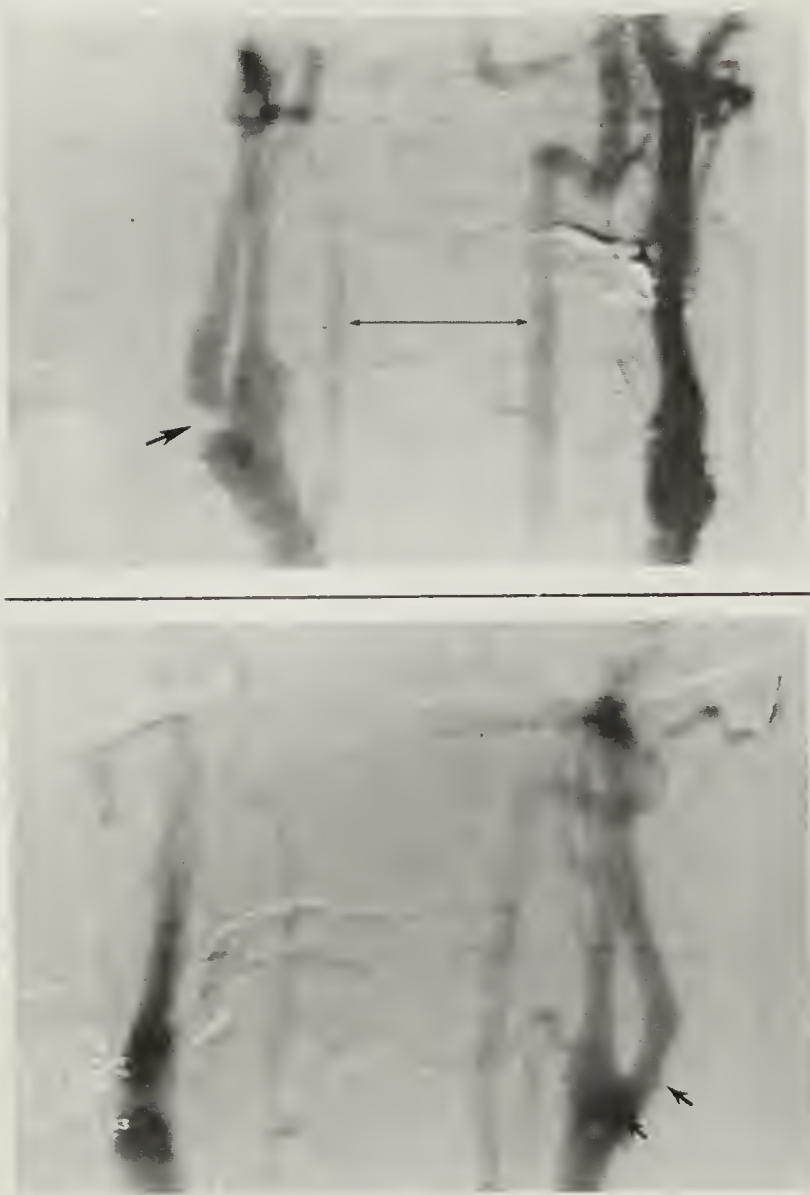


**Figure 2**

A 59-year-old male with asymptomatic right carotid bruit. A. Left posterior oblique view. A tight stenosis is seen at the origin of the right internal carotid artery (single arrow). The vertebral arteries are also demonstrated (double arrow). B. Right posterior oblique view. Two ulcers are seen at the origin of the left internal carotid artery (arrows).

described in detail in several previous articles.<sup>1-3</sup> Basically, it consists of a high resolution fluoroscopic x-ray unit, a high-speed digital computer, and a television imaging system. The examination is performed by introducing an angiographic catheter into an antecubital vein and passing it proximally into the superior vena cava. A 40 cc bolus of standard iodinated angiographic contrast material (Renografin 76) is delivered by a power injector over 1.5 seconds. Video images are then collected and digitized every second for 20 seconds. Images collected before the appearance of contrast material in the cervical and intracranial arteries are electronically subtracted from images obtained after its arrival in order to delete the superimposed bony and soft tissue structures. At this point, the concentration of contrast material in the arteries is often still too faint to be clearly seen. Computer manipulation of the digitized subtracted image is then used to enhance the visual contrast, thereby making the arterial structures plainly visible. The patient generally experiences no discomfort

with the injection other than perhaps a mild sensation of warmth. The resolution of vascular detail with this technique is currently about 1 mm.

One difficulty with this modality is that all the cervical and intracranial arteries are opacified simultaneously. This creates a definite challenge in selecting a suitable projection to display the artery of interest without superimposition of other vessels. Multiple projections are frequently required to obtain a satisfactory examination. A second problem is that the patient must be able to hold perfectly still, as any motion significantly degrades the quality of the subtracted image. In fact patient motion has been the leading cause of non-diagnostic examinations. Infrequently, a suboptimal examination is obtained because of low cardiac output. Calcification in the arterial wall is occasionally a problem, since it is constantly in motion and therefore difficult to subtract.

The patient risk for this examination is quite low. Most studies are performed on an outpatient basis and usually require less than one hour to complete.

### Indications

Most intravenous cerebral angiograms at this institution are done to evaluate the extracranial carotid arteries for stenoses and/or ulcerations or to evaluate postoperative results. Many patients are studied who have asymptomatic carotid bruits, particularly if their non-invasive studies have been positive (Figure 2).

In addition to evaluation of atheromatous disease, serial studies have been used to follow the size of intracranial aneurysms. Several examinations have been successfully performed to confirm patency of superficial temporal to middle cerebral artery bypass grafts. Our experience with intracranial tumors has been limited. To date, two glomus jugulare tumors and a meningioma have been successfully imaged.

In most patients examined for atherosclerotic carotid disease, this test has concluded their radiographic workup. In some cases where the results have been equivocal or suboptimal, conventional intra-arterial angiograms have been done following the intravenous study.

### Summary

As the technique is further refined and the equipment becomes more widely available, intravenous angiography will commonly replace conventional intra-arterial angiography in a wide variety of clinical applications. The low risk to the patient and the diagnostic accuracy make this an acceptable screening device in cerebrovascular disease.

### References

1. Ovitt TW, Christenson PC, Hillman BJ: Intravenous angiography utilizing digital video subtraction. *Ariz Med* 37:354-6, 1980.
2. Christenson PC, Ovitt TW, Fischer HD III, Frost MM, Nudelman S, Roehrig H: Intravenous angiography using digital video subtraction: Intravenous cervicocerebrovascular angiography. *AJNR* 1:379-386, 1980.
3. Ovitt TW, Christenson PC, Fisher HD III, Frost MM, Nudelman S, Roehrig H, Seeley G: Intravenous angiography using digital video subtraction: X-ray imaging system. *AJNR* 1:387-390, 1980.



# Diagnosis and Treatment of Male Erectile Dysfunction

Larry E. Beutler, Ph.D.  
Del Steinbronn, M.D.  
Colin R. Bamford, M.D.

## Abstract

Reliable diagnostic and treatment decisions regarding patients with erectile dysfunction must be based upon thorough urological, endocrinological, neurological, psychological and polysomnographic evaluation. An incomplete assessment may result in the application of inappropriate treatments. The need to specify the nature, frequency, and etiology of this disorder is considered. Methods for urodynamic, urological, psychological, neurological and polysomnographic evaluations are considered.

Key Words: Erectile Failure, Impotence, Urodynamics, Marital Conflict, Polysomnography.

The prevalence of male erectile dysfunction — the volume of literature addressed to this problem, and the variety of treatments becoming available are increasing at an exponential rate.<sup>1</sup> Yet, there continues to be controversy and lack of conceptual clarity in the literature. The new *Diagnostic and Statistical Manual* for psychiatric disorders (DMS III) distinguishes between a dysfunction of sexual *desire* and a dysfunction of sexual *excitement*. "Impotence" (with a capital I) is a term now reserved for conditions of erectile failure attributable to organic disease. However, even this diagnostic requirement leaves much to be desired. The etiology of

erectile failure, is more varied and complex than current differentiations suggest. Even in the current diagnostic systems, for example, a single failure of erectile initiation or maintenance (e.g. impotence with a lower case "i") is accorded the same status as either consistent or periodic failure over a ten year period. Concerns for the patient's self expectancies, usual frequency, prior level of functioning, and alterations in the demand characteristics of the environment (e.g. a change in his sexual partner's interest or lubrication) bear little diagnostic attention in current systems. In clinical practice the working definition of erectile failure is purely descriptive, usually fails to differentiate between sexual failure and sexual disinterest, is often unconcerned with the balance between organic and psychological contributors and, therefore, plays a relatively minor role in determining treatment decisions.

Since both organic impotence and its psychological counterpart, Inhibition of Sexual Excitement are manifest in precisely the same symptom, the practitioner may find it easy to justify the particular type of treatment to which he or she is disposed. Therefore, even after initial differentiations among the three major diagnostic groupings are made, further etiological concerns must be given before treatment is assigned. For example, it is important to observe that a large proportion of men are impotent because of nonspecific

From: University of Arizona Health Sciences Center, Department of Psychiatry, Tucson, Arizona 85724. Reprint requests to Dr. Beutler

but yet clearly organic causes. Subclinical pathology combined with normal variation in physiology possibly accounts for as many as forty percent of Impotency cases.<sup>2</sup>

The same need for specificity is seen when the diagnosis is Inhibition of Sexual Excitement (e.g. DSM III). In this event, one must further distinguish among a) transient situational states such as performance anxiety, b) sexual disturbance reflecting unresolved marital-interpersonal conflicts, and c) erectile failure which accompanies nonsexual psychopathology. Psychological treatment for these three varieties of sexual dysfunction are strikingly different.

Before moving on to more specific considerations of evaluation and treatment of erectile failure, it must be underlined that in spite of our concerns for differentiating between erectile failure which is primarily psychogenic and that which is primarily organic, the condition rarely exists as a function of either one or the other process. Conceptually, it is more useful to think of erectile failure as representing the final, common pathway of a host of psychological, social, and organic events. Hence, evidence either of organic or psychological pathology alone does not provide a diagnosis which is suitable for definitive treatment decisions.

Given the complexity of the problems described in the foregoing, a clear evaluation of erectile dysfunction necessitates a multi-professional, interdisciplinary effort. Urological and urodynamic studies, psychological assessment, neurological evaluation and polysomnographic recordings are all frequently required to arrive at a definitive diagnosis and a determination of appropriate treatment plans. In the following pages we will consider some of these procedures and the issues attendant upon each of these evaluational processes. We hope to draw the reader's attention to the questions that might be answered through each evaluation and their implications for treatment.

### Medical and Urological

The evaluation of impotence begins with a thorough medical history. Particular emphasis is paid to indications of past major pelvic surgeries or radiation therapy either to pelvic organs or the pudendal and periprostatic nerve plexi and vascular bed. These organs are often altered during surgery and, in turn can lead to Impotence. A list of all medications which the patient takes regularly or has taken in the recent past should also be obtained since a plethora of medications can cause both a decrease in libido, alter peripheral or central nervous system functions and/or impair vascular compliance.<sup>3</sup>

A family history of diabetes mellitus or vascular disease is also suggestive of an organic etiology. Diabetes mellitus, for example, is one of the most popular indications presently associated with penile prosthesis implantations. While the exact cause of diabetes related impotence is obscure, most suggest it is

related to changes of autonomic nerves within the erectile bodies of the penis itself.<sup>4</sup>

A family, or personal history of vascular disease (such as Leriche's syndrome, internal iliac and pudendal artery stenosis and aortic aneurysms) suggests possible abnormalities in penile blood flow. Similarly, evidence of prior episodes of priapism should be elicited since both its development and surgical correction (shunting) can result in Impotence.

Finally, the history must explore evidence of endocrinopathies such as Addison's disease, Klinefelter's syndrome, hyperprolactinemia and hypothyroidism. These diseases are rare causes of impotence and are usually diagnosed through medical history and/or physical examination.

The evaluation also includes a brief but complete physical examination. An abdominal examination should be performed in order to detect bladder distention which can be associated with diabetes mellitus or either central or peripheral nerve diseases. One should listen for abdominal or iliac artery bruits which would suggest significant vascular narrowings. The presence of any major surgical incision or evidence of pelvic trauma should be followed by further historical clarification since it is not infrequent that the patient forgets remote traumas on initial interview. The phallus should also be examined and palpated thoroughly during the physical exam since fibrous plaques indicating Peyronie's disease may be appreciated. Though not uniformly producing Impotence, Peyronie's disease can lead to curvature and pain in the penis during erection and thereby alter erectile performance.

The testis should always be examined and particular note should be made of their diameter. In the adult male, a measurement of 4.0 cm at the point of greatest diameter has been correlated strongly with normal development of male secondary sexual characteristics and thus normal peripheral testosterone levels.<sup>5</sup>

Finally, a rectal exam should be performed to assess rectal sphincter tone and the presence of a bulbocavernosus reflex. This examination along with a brief neurologic examination may detect disturbances in saddle and genital sensation associated with sacral nerve roots 2, 3 and 4, thus giving clues to neurologically associated Impotence.

During the medical history and physical examination, one should attempt to isolate patterns which may be of diagnostic significance. In most cases, three basic groups of patients can be identified. Patients with obvious organic impotence (i.e. Impotence), if found to be psychologically stable, may be offered surgical penile implants without further evaluation. Individuals in this group include those who have undergone cystectomy, radical prostatectomy, bilateral orchiectomies or estrogen hormone administration for the treatment of malignancy. A second group may also emerge among whom the biological causes are not as certain as in the foregoing group. This group of patients will usually include those with endocrinopathies, vascular disease,



or with a previous history of pelvic irradiation. The third group of patients who are likely to emerge during urological evaluation are those who have mixed psychogenic and organic impotence or no recognizable organic pathology (i.e. possible psychogenic impotence). These patients almost invariably should undergo complete psychologic and neurologic evaluation including nocturnal penile tumescence (NPT) evaluation prior to being offered any formal therapy. The third group includes patients with clear psychogenic problems or those who are maintained on drugs which can alter erections such as alcohol, narcotics, tranquilizers, barbituates, chronic anti-cholinergics and various anti-hypertensive agents.

### **Psychological Evaluation**

Numerous psychological events or stressors can affect sexual performance. Frequently, sexual dysfunction is a specific result of a nonspecific psychological stress. That is, contrary to many popular beliefs, a psychogenically impotent patient is not necessarily responding to specific conflicts about sexual aggression or sexual adequacy and most do not have obvious psychological disturbance. Almost any kind of psychological or emotional stress, either transient or chronic can result in suppressed sexual ability.<sup>6,7</sup> This is not to discount either the significance of sex related stresses such as those present in conflict laden marital relationships or overt psychopathology among individuals who have long standing conflicts about their own sexual adequacy. Nonetheless, psychological evaluation must be sensitive to a variety of often subtle parameters. It must assess the degree of even unexpressed marital-sexual distress, the susceptibility of the individual to transitory environmental stresses (e.g. both sexual and nonsexual), and the presence of more obvious psychological disturbance to which the sexual dysfunction may be secondary. Since indicators of psychological difficulty are often unexpressed and or inaccessible to the patient's awareness, administering formal psychological assessment devices (e.g. The Derogatis Sexual Functioning Inventory;<sup>8</sup> or the Sex Form<sup>6</sup>) to both sexual partners can frequently be useful. Indications of undue concerns with sexual identity, sexual guilt, and sex drive, as well as discordant perceptions between the partners about the problem can often be derived from such instruments. This information can assist the mental health professional to determine if the patient's dysfunction may be a result of factors which might be addressed through traditional, psychological means, such as marital, sexual or individual psychotherapy.

Formal assessment of intrapsychic disturbance must include indications of the degree of psychological stress, types of conflicts, the adequacy of coping strategies, and the usual mechanisms of coping with stress if an appropriate diagnosis is to be rendered. While interview-based strategies like the Mental Status Examination are helpful, in the absence of empirically derived norms, such techniques may not be as sensitive as needed. Information about consistency of dysfunction over time,

usual performance level, partner-to-partner variation, early sexual-religious experience, and nonintercourse-to-intercourse variations in functioning, might provide clues to psychological etiology but are probably much more unreliable than usually recognized.<sup>1,2,7,9</sup> Even when evidence is obtained of a disturbance in one or more of the three assessed areas of psychological functioning (interpersonal-marital stress; transitory performance stress; or intrapsychic stress), the diagnostic implications may remain clouded. Since organic dysfunction seems to produce psychological sequelae which, in most respects, is similar to the causes of psychogenic dysfunction (e.g. performance anxiety, depression, marital stress), the absence of such indicators has more specific diagnostic meaning than their presence.<sup>19</sup> While there are subtle factors which seem to distinguish the psychological causes from the consequences of erectile failure, these are few and are probably not reliable enough for individual diagnoses.<sup>6</sup> Hence, the absence of the foregoing variables may be a rather good indicator of a well maintained organic dysfunction.<sup>1,6,9</sup> Moreover, the patient's ability to tolerate medical intervention may closely correspond with the amount of psychological disturbance, regardless of its etiological significance.<sup>9</sup>

Collectively, the psychological specialist must combine information derived from the patient's history and from formal psychological assessment devices. From this information one can render an appropriate determination of the degree to which psychological factors contribute to the patient's dysfunction, the likelihood that psychological treatments might be used either to directly manage the erectile difficulty, or to compliment and assist the patient in adjusting to other modes of treatment.

### **Neurological and Neurophysiological Evaluation**

Normal sexual performance in the male utilizes the cognitive functions of the cerebral hemispheres, particularly the temporal lobes and limbic system, as well as the brainstem, the spinal cord and the peripheral nerves.<sup>2,10</sup> The neurologist when evaluating the problem of erectile failure must attempt to exclude lesions affecting all of these areas.

The neurologist's approach to evaluating the patient's cognitive functions consists largely of performing a brief, simple mental status examination adequate to recognize an organic brain syndrome or an overt psychological disturbance. This evaluation, while necessary, is subservient to the formal psychological assessment.

The search for cerebral hemispheric damage should include taking a history to document previous head injuries, strokes and epilepsy, as well as, current headaches or lateralized symptoms. Neurological examination should be done to identify papilledema; contralateral visual field defects; contralateral weakness, drift, hyperreflexia and Babinski reflex; and contralateral sensory deficit (often revealed by extinction on bilateral simultaneous tactile stimulation).



With appropriate indications based on the preceding, a CT scan and EEG should be ordered.

The clue, which suggests that the patient suffers from a brainstem lesion, is the presence of "crossed" findings such as ipsilateral cranial nerve (III-XII) deficits and ataxia combined with contralateral weakness and hypoesthesia. Spinal cord lesions must be considered if the patient has back pain, weakness of both legs, hyperreflexia, bilateral Babinskis, a diminished sensory level and bowel/bladder difficulties (urgency, frequency, incontinence).

Cauda equina involvement should be suspected if the patient has low back pain, weakness of the legs, areflexia, flexor plantar responses and leg and perineal numbness. Spinal cord and cauda equina lesions need prompt diagnosis, by myelography if necessary.

More to the point, it is when the peripheral nerves are affected that impotence can be an early and isolated symptom; it may take sophisticated neurophysiological evaluation before the lesion can be localized.

The neurological examination may reveal signs of a peripheral neuropathy such as absent ankle jerks and decreased sensation of the feet, as well as, signs of an autonomic neuropathy such as urinary bladder distention and a lax anal sphincter.

The bulbocavernosus reflex is due to a multisynaptic arc consisting of an afferent limb made up of general somatic afferents transmitted via the pudendal nerves to the spinal cord and general somatic efferents transmitted via the same nerve to the external anal sphincter and bulbocavernosus muscles. The reflex is elicited by squeezing the glans penis and awaiting the contraction of the anal sphincter around the gloved finger.<sup>11</sup>

Far more sensitive is the measurement of the bulbocavernosus reflex latency.<sup>12</sup> This test can be performed by an electromyographer or urologist. The glans penis is stimulated electrically and the response is measured with a needle inserted into the bulbocavernosus muscle. The time lapse between the beginning of stimulation and response should not exceed 36 msec. A prolonged latency to the response suggests a neuropathy affecting the general somatic nerve fibers.

A similar test is the urethral electromyogram, in which the bladder neck rather than the glans penis, is electrically stimulated.<sup>13</sup> Recording is made of the external sphincter EMG and a latency up to 70 msec. is normal. During the electromyogram the bladder pressure can be monitored, and with repeated electrical stimuli the detrusor contracts with a corresponding rise in the intravesical pressure. The detrusor muscle is innervated by the parasympathetic autonomic nerves.<sup>2-4</sup>

Delayed latencies of the bulbocavernosus reflex and the urethral electromyogram indicates a neuropathy affecting the general somatic nerves. In a pure autonomic neuropathy these latencies would be normal but the intravesical pressures recorded during urethral electromyography would be low.

The diagnosis of autonomic dysfunction can be supported by means of a histamine flare test. If 10 to 100 mg of histamine is injected intradermally into a normal subject, a triple response occurs consisting initially of focal erythema at the injection site, the development of a pale wheal, and at ten minutes by a surrounding flare. The flare is brought about by means of an autonomic reflex, and is absent in skin deprived of its autonomic nerve supply.<sup>14</sup> In the impotent patient the test should be performed in the distal lower extremities as well as an area supplied by the sacral dermatomes.

### **Polysomnography (PSG) with Monitoring of Nocturnal Penile Tumescence (NPT)**

Most males are aware of the fact that they may awaken in the morning with a penile erection or at night following an emission. Fisher, et.al.<sup>10</sup> determined that in normal subjects, 95% of rapid eye movement (REM) periods were associated with penile tumescence. Every normal male between the ages of 3 and 79 exhibits this phenomenon,<sup>2</sup> and it has been assumed that this observation should apply to all patients with psychogenic impotence as well. Karacan<sup>11</sup> has noted that dreams accompanied by anxiety do at times suppress NPT. However, if patients are monitored for several consecutive nights it is unlikely that a patient with psychogenic impotence would maintain constant suppression.

Two days prior to the PSG study, drugs that suppress REM sleep are discontinued. The patient arrives at the sleep laboratory two hours before his usual bedtime. Electrodes are applied to the scalp, so that the EEG can be used to monitor sleep stages zero to IV. The electro-oculogram is also monitored to facilitate the recognition of REM sleep. Mercury strain gauges are secured to the tip and base of the penis so that any fluctuations of penile circumference will produce a pen deflection on the polysomnograph. The patient is allowed to sleep undisturbed the first night until his usual time to awaken. On the subsequent nights, the technician will confirm the presence of a maximal erection by direct visual inspection and turgometry. This does, however, entail awakening the patient.

If the patient fails to attain a satisfactory erection both by normative and ipsative criteria at any time in the two or three consecutive nights studied, he is considered to be organically impotent.

### **Nocturnal Penile Tumescence.**

In recent years much attention has been given to the possibility of measuring NPT in more simple (e.g. home based) environments than is usually required in the complete polysomnographic examination. The expense of polysomnographic studies is sometimes a mitigating factor and has led many to reject its utility when the patient's history seems to point to a specific kind of organic or psychological etiology. However, history may be an unreliable indicator of either psychogenic or organic etiology.<sup>2,9</sup> Elsewhere we have suggested that there may be a significant degree of unreliability in these



home monitored nocturnal penile tumescence measures as well.<sup>9</sup> Indeed, it is likely that such examination is most reliable in those instances where patients do in fact produce the expected number of erections at the anticipated level of intensity. Given the degree of variation and amount of penile expansion required for turgidity, however, even this statement must be made with some qualification.

Alternatively, the absence of erections on home monitoring devices yields little diagnostic information. Equipment failure, disturbance of REM sleep, or malingering are all possible causes of flat NPT recordings. It is because of these observations that we underline the value of a multi-faceted evaluation which includes both psychological, neurological, urological, and polysomnographic variables.

It may also be important to attack the diagnostic problems sequentially, proceeding from screening evaluation of psychological functioning and home monitored NPT arousability to more intensive polysomnographic and medical studies as needed.<sup>9</sup> If the individual produces both good evidence of NPT on home monitored evaluation, and manifests abnormally high levels of psychological disturbance, complete polysomnographic studies might be delayed. While more specificity about these considerations needs to be addressed by future research, enough information is currently available to suggest that a decision-tree diagnostic model might eventually be helpful in reducing the cost of a reliable, treatment relevant diagnostic assessment.<sup>9</sup>

### **Treatment Considerations**

**Surgical Consideration.** The major treatment modality presently being offered patients with organic impotence, and occasionally those with mixed organic and psychogenic erectile failure, is either the solid or inflatable penile implant. We feel that the wholesale applications of penile implants, for any and all causes of erectile failure including those of primarily psychogenic origin, should be discouraged since there are still significant risks involved in their implantation.<sup>7,15,16</sup> Presently, all surgical penile implants are placed during a short two to three day hospital stay, and in most cases under regional or general anesthesia. The estimated total costs under such conditions are approximately \$6,000 for the inflatable variety and \$4,500 for the solid variety.

The major advantages of the inflatable implant include, its relatively natural appearance, and the surgical ease of subsequently operating on the bladder or prostate transurethrally, if necessary, while it is in place. The major disadvantages of the inflatable variety include, its substantially greater cost, and the higher rates of mechanical failure. At present, under ideal conditions, one inflatable implant in five will need open surgical repair of mechanical failure.<sup>17</sup>

**Medical Considerations.** Medical management of impotence presently is quite limited as no reliable and

safe aphrodisiac has been found to date. However, if the patient is taking a specific medication which may cause impotence, it should be identified and its discontinuation or substitution should be attempted. In the past, testosterone and human chorionic gonadotrophins have been widely used by some physicians for their placebo effect, or for ill-defined reasons without any proof of efficacy.<sup>18</sup> We feel strongly that testosterone should only be given to those patients with a documented deficiency of this hormone because its use in situations other than this may be detrimental. If one chooses to use testosterone in this fashion, one should be aware of possible medical and legal ramifications with patients who later are found to have prostatic carcinoma or hepatitis, as testosterone could stimulate or induce these more undesirable disease processes.

Finally, while the use of psychoactive medication may result in improved sexual performance through management of anxiety and depression, we do not consider these treatments to represent ideal alternatives without the accompaniment of supportive, psychological treatments as well.

**Psychological Considerations.** For our purposes, psychological treatment can be considered as either specific or non-specific to sexual dysfunction. Performance anxiety, for example, is relatively easily treated through a host of behavioral procedures available since the advent of Masters and Johnson.<sup>19</sup> Likewise, failure, which is secondary to marital-interpersonal conflict, can probably best be treated through nonsexual interventions which reduce marital and interpersonal stress. However, since erectile failure may also be a result of a wide variety of nonsex related psychopathologies, most notably depression and anxiety, the primary focus of some treatments might best be upon the psychopathology itself.<sup>9</sup>

Specific advances in the psychological treatment of anxiety and depression are noteworthy. These treatments either teach the patient to counteract tension and anxiety through muscle relaxation, or help construct and reinforce thought patterns which are antagonistic to depressive ideation. To the degree that anxiety and depression contribute to the patient's erectile failure, their alleviation by these means may restore sexual functioning even though treatment is not specifically for sexual activity per se. By the same token, if anxiety and depression are concomitants or even consequences of an organic sexual dysfunction, psychological treatments for these emotional conditions may be used as an adjunct to medical or surgical treatments designed to correct the primary disease process.

Nondemand pleasuring, sensate focus, cognitive restructuring and communication training can be helpful in dealing with male erectile disorder regardless of the etiology.<sup>9</sup> The supplementary use of psychological interventions has been found useful in helping people adjust to the conditions of their medical treatment and develop a more compatible and warm relationship in

which their sexual experiences might occur.

Indeed, the potential impact of marital-sexual conflicts as both causes and consequences of erectile failure underscores the importance of discussing sexual matters both with the patient and his sexual partner. Our research is increasingly suggesting the importance of the partner's involvement both for valid diagnosis, and successful treatment, whether medical, surgical or psychological. Close follow up with both partners is often necessary even after the physical dysfunction is surgically or medically corrected, in order to reduce the negative impact which often accompanies even a "positively" changed sexual relationship. One can anticipate that the future will bring increasingly specific treatment for these disorders, but the general practitioner should be advised that the day of applying a single "psychotherapy" to virtually all psychological conditions is gone, as is the value of considering erectile failure as a dichotomous, exclusive expression either of psychological or physical disease processes.

#### References

1. Beutler LE, Karacan I, Ware JC: Psychological assessment of sexually impotent men. In: *Sleep Disorders: Diagnosis and Treatment* Karacan I, Williams RL, (eds), New York: Wiley, 1978.
2. Karacan I, Salis PJ, Williams RL: The role of the sleep laboratory and the diagnosis and treatment of impotence. In: *Sleep Disorders: Diagnosis and Treatment*, Karacan I, Williams R.L., (eds), New York: Wiley, 1978.
3. Kaplan HS: *The New Sex Therapy*. New York, A Brunner/Mazel Publication, Quadrangle, The New York Times Book Co., 1974.
4. Ellenberg M: Impotence in diabetes: The neurologic factors. *Ann Intern Med* 75:213, 1971.
5. Federman D: The assessment of organ functions — the testis. *New Engl J Med* 285(16):901-02, 1971.
6. Beutler LE, Thornby JE, Karacan I, Walker CE: Sexual attitudes of psychogenic and organically impotent men. *J Sex & Mar Ther* 6:155-63, 1980.
7. Beutler LE, Scott FB, Karacan I: Psychological screening of impotent men. *J of Urol* 116:193-97, 1976.
8. Derogatis LR: Psychological assessment of sexual disorders. In: *Clinical Management of Sexual Disorders*. Meyer MJ, (ed), Baltimore: Williams and Wilkins, 1976.
9. Beutler LE, Gleason D: Integrating the advances in the diagnosis and treatment of male potency disturbance. *J of Urol* (In Press.)
10. Fisher C, Gross J, Zuch J: Cycle of penile erection synchronous with dreaming (REM) sleep. *Arch Gen Psychiatr* 12:29-45, 1965.
11. Karacan I: Clinical value of nocturnal erection in the prognosis and diagnosis of impotence. *Med Asp Human Sexuality* 4:27-34, 1970.
12. Bors E, Comarr AE: Neurological disturbances of sexual function with special reference to 529 patients with spinal cord injury. *Urol Surv* 10:191-222, 1960.
13. Guttman L: The sexual problem. In: *Spinal Cord Injuries. Comprehensive Management and Research*. Blackwell Scientific Publications, chapt. 29, pp. 474-505, 1976.
14. DeJong RN: Examination of the autonomic nervous system. In: *The Neurological Examination* Harper & Row, Chapt. 41, pp 510-21, 1979.
15. Small M: Small-Carrion penile prosthesis: A report of 160 cases and review of the literature. *J Urol* 119:365-68, 1978.
16. Farlow W: Inflatable penile prosthesis. Mayo Clinic experience with 175 patients. *Urology*, 18:166-70, 1979.
17. Personal communications with Brantley Scott, M.D.
18. Westaby D, Paradinas FJ, Ogle SJ: Liver damage from long-term methyltestosterone. *Lancet* 1:216, 1977.
19. Masters WH, Johnson VE: *Human Sexual Inadequacy*. Boston: Little and Brown, 1970.

## Thyroid Function Tests in Nonthyroidal Illness are Diagnostically and Prognostically Important

Sidney C. Werner, M.D., D.Sc. (Med.)

#### Abstract

The methods for testing thyroid function have been reviewed. The results correlate well with the final diagnosis in primary thyroid disease, but lose this ready correlation in nonthyroidal illness, particularly when illness is critical. This is due to a series of pathophysiological changes which affect the thyroid hormone economy, and hence the results of thyroid function testing. It is therefore essential that these be understood for the test results to be correctly interpreted. Besides their diagnostic importance, the test results relate to prognosis, particularly in critical illness.

**Key Words:** Hyperthyroidism, hypothyroidism, thyroid function tests in diabetes mellitus, liver cirrhosis, infectious diseases, surgery, trauma, fasting, cancer.

The testing of thyroid function is generally initiated by determination of the serum thyroxine (T<sub>4</sub>) and triiodothyronine resin uptake (T<sub>3</sub>U).<sup>1</sup> The latter is an indirect measure of the binding of T<sub>4</sub> (or T<sub>3</sub>) to the serum thyroxine binding proteins (TBP). The essential component of TBP is thyroxine binding globulin (TBG).<sup>1</sup> The unbound or dialyzable hormone fraction is that which enters the body cells to produce its physiological effect.

The unbound or free T<sub>4</sub> (FT<sub>4</sub>) concentration can be

From: University of Arizona Health Sciences Center, Department of Medicine, Division of Endocrinology, Tucson, Arizona 85724. Reprints will not be available from the author.



estimated from the T4 and T3U by two simple calculations.

1.) Expression of the T3U as a ratio, T3UR:

$$T3UR = \frac{T3U \text{ (patient's serum)}}{T3U \text{ (control serum or standard)}}$$

2.) Calculation of the free thyroxine index (FT4I):

$$FT4I = T4 \times T3UR$$

Considerable investigation has revealed that the FT4I reflects FT4 very reliably in uncomplicated thyroid disease.<sup>1</sup>

Direct methods for measurement of FT4 and free triiodothyronine (FT3), also, are available commercially. However, the methods of only two laboratories gave consistently comparable results in a recent comparison with the standard dialysis procedure:<sup>2</sup> Abbott Immunoassays; and Clinical Assays.

Diagnostic uncertainty may arise from the results of thyroid function testing. One physiological alteration which gives rise to this dilemma is preferential secretion of T3 instead of T4. This may occur in early Graves' disease or in Euthyroid Graves' disease, and also in toxic (occasionally nontoxic) nodular goiter. This form of T3 toxicosis will not be detected by the customary T4 and T3U tests. Rather, a second step is required, determination of T3 by radioimmunoassay (T3RIA). If this does not reveal the diagnosis, consultation with an expert in the thyroid field or with an endocrinologist experienced in the thyroid area is advisable.

The consultant most likely will suggest either a T3 suppression test or TRH stimulation test.<sup>3</sup> The suppression test requires a baseline radioiodine uptake. This result may reveal that the source of the suspected hyperthyroidism is not toxic goiter, but "silent" or "atypical," acute or chronic thyroiditis.<sup>4</sup> In this event, the uptake may be virtually zero<sup>5</sup> (excluding, of course, recent intake of iodides or administration of an iodinated organic compound). Such hyperthyroidism is transient, and requires no therapy, per se. With T3 toxicosis, the T3 suppression test shows failure of suppression, and the TRH test, with bloods for TSH at zero time and at 30 minutes after TRH injection will show a failure of response, i.e. no increase in TSH concentration.<sup>3</sup>

The high diagnostic reliability of the tests of thyroid function undergoes an about face in nonthyroidal illness (NTI), and may lead to a false positive diagnosis of hyper- or hypothyroidism in the sick euthyroid patient. The subject has been recently reviewed.<sup>6,7</sup> Much research has helped shed light on the physiologic disturbances which take place in thyroid hormone economy, but also has emphasized the diagnostic and prognostic importance of these changes as reflected by the tests of thyroid function.

The early studies of NTI and of the thyroid hormone economy therein, demonstrated a decrease in the T4

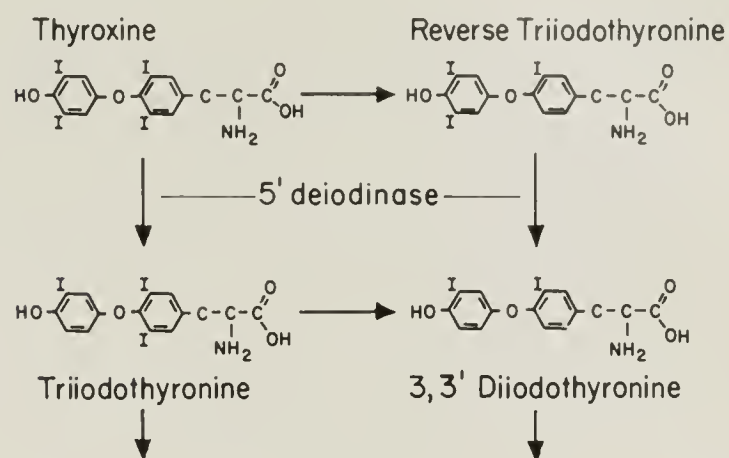


Figure 1

Diagram showing probable role of 5'-deiodinase in removal of iodine at the outer ring 5', and inner ring 5 positions. Reprinted from Schussler GC<sup>6</sup> with permission of Travenol Laboratories Inc., Flint Laboratories Division, Deerfield, IL.

binding capacity of thyroxine-binding prealbumin (more recently overshadowed by the discovery of a more physiologically significant decrease in TBG binding capacity).<sup>7,8</sup> Between 1967 and 1972, it was also established that the daily T4 and T3 turnover became increased during certain acute illnesses.<sup>7</sup>

However, it was the discovery that serum T3 concentrations dropped sharply with onset of NTI, the "low T3 syndrome,"<sup>9</sup> that led to the present intense interest in the subject. The drop in T3 concentration has been revealed to be the result of a decrease in normal peripheral tissue conversion (particularly liver and kidney) of T4 to T3 as the consequence of a decrease in the enzyme, 5'-deiodinase.<sup>10</sup> This enzyme is responsible for the removal of the outer ring iodine of thyroxine at the 5' position (Figure 1), and normally accounts for about 80% of daily T3, 3',3,5-T3, production. As serum T3 decreases, serum levels of reverse T3 (rT3), 3',5',3-T3, physiologically almost inert, become increased, due to the decrease in 5' deiodinase (Figure 1).<sup>11</sup>

Despite the drop in T3 early in NTI, hypothyroidism does not develop. T4 concentrations usually remain normal, or may even increase transiently with concomitant hyperthyroidism.<sup>12</sup> However, due to decreased binding of T4 by TBG, increased or normal levels of FT4 are maintained. To account for these observations, elaboration of a protein has been postulated<sup>8,13</sup> which inhibits T4 binding to TBG. As a consequence, the correlation between FT4 and FT4I in thyroidal disorders, no longer holds in NTI.

The changes in thyroid function outlined above have been shown<sup>6</sup> in nonthyroidal illness, particularly in diabetes mellitus, protein calorie malnutrition, alcoholic cirrhosis, nephrosis (Table 1) and after surgery. Later in disease, or with critical illness, T4 levels, too, may decrease, even considerably. An alternative method of calculation of FT4I has therefore been proposed, in order

Patterns of thyroid function tests found in hyperthyroidism, hypothyroidism and some nonthyroidal illnesses.

|                                                     | T4     | T3 RU | Free T4 | T3     |
|-----------------------------------------------------|--------|-------|---------|--------|
| Hyperthyroidism                                     | ↑      | ↑     | ↑       | ↑      |
| Hypothyroidism                                      | ↓      | ↓     | ↓       | ↓      |
| Euthyroid sick, cirrhosis                           | N or ↓ | ↑     | N or ↑  | ↓      |
| Hyperthyroidism modified by nonthyroidal illness    | ↑      | ↑     | ↑       | N or ↓ |
| Protein calorie malnutrition with iodine deficiency | ↓      | ↑     | ↓       | ↑      |

Table 1

Table reprinted from Schussler GC,<sup>6</sup> with permission, of Travenol Laboratories Inc., Flint Laboratories Division, Deerfield, IL.

to compensate for the altered thyroid function test results seen in NTI.<sup>14</sup>

Illustrative values for the tests obtained in critical illness, and taken from Kaptein and co-workers,<sup>13</sup> follow. The mean normal control value is presented first, followed in parenthesis by the corresponding mean value for critically sick patients: T4 8.0 (1.8)mcg/dl, FT4I 7.7 (2.2); FT4 1.8 (1.1)ng/dl (note loss of correlation with FT4I in NTI); T3 151 (28)ng/dl; rT3 33 (128)ng/dl; TSH 1.9 (1.8)uU/ml; and NTI post TRH 5 uU/ml.

As the changes, especially when illness is critical, increase in severity, the mortality rate rises proportionately. Again, from Kaptein and co-workers' study,<sup>13</sup> patients with serum T4 greater than 5 mcg/dl had a mortality rate of sixteen percent. However, when T4 was between 3-5 mcg/dl, 44% succumbed, and when T4 was less than 3 mcg/dl, 72% died. A similar relationship between T4 values and mortality rate has been described in alcoholic liver disease.<sup>15,16</sup>

**Conclusions and Summary:** The clinician faced with the test results from the usual tests of thyroid function in the sick patient with nonthyroidal illness (NTI), must be aware that uncritical acceptance of such values may result in serious diagnostic error. Early in NTI, the error may be on the side of hyperthyroidism. Much more often the error is on the side of hypothyroidism. Fortunately, when TSH levels are normal and T3U, or FT4, or both, are in the normal or high normal range, hypothyroidism can be excluded with small risk of a false negative diagnosis. Whether, in more protracted, critical illness, derangement of hypothalamic control over the pituitary-thyroid axis<sup>17</sup> may lead to tissue hypothyroidism is a problem currently under investigation. As an aside, the occurrence of NTI and true hypothyroidism, or hyperthyroidism, is in itself rare. As already indicated, true hypothyroidism can be confirmed by a high circulating TSH concentration; and

true hyperthyroidism, in a recently admitted sick patient, by the presence of an enlarged thyroid together with levels of T4 and T3U, or FT4 in excess of normal.

The importance of correct diagnosis is probably more than theoretical. There is the as yet unknown but very possible risk that treatment for hypothyroidism (or hyperthyroidism), in the physiologically altered situation that exists with NTI, may be contraindicated. The body is conserving calories and protein in NTI through reduction in peripheral conversion of T4 to active T3 and concomitant increase in levels of physiologically inert rT4<sup>10,18</sup>. Alteration of this adaptation, by treatment for a false positive diagnosis of hypothyroidism, is to date a risk best avoided.<sup>19</sup>

## References

1. Larsen PR: Thyroid hormone concentrations, ch. 16, and Woeber KA: Test of thyroid hormone transport, ch. 17. In: *The Thyroid* Werner SC, Ingbar SH, (eds), Harper & Row, Hagerstown, Md, 4th edition, 1978.
2. Kaptein EM: Thyroid dysfunction associated with nonthyroidal disease. *Clinical Day, Program, American Thyroid Association, 56th Annual Meeting*, San Diego, CA., Nov. 5, 1980.
3. Utiger RD: Tests of the hypothalamic — pituitary — thyroid axis ch. 19. In: *The Thyroid*. Werner SC, Ingbar SH, (eds), Harper and Row, Hagerstown, Md., 4th edition, 1978.
4. Dorfman SG, Cooperman MT, Nelson RL, et al: Painless thyroiditis and transient hyperthyroidism without goiter. *Ann Int Med* 86:24-8, 1977.
5. Werner SC, Quimby EH, Schmidt C: The use of tracer doses of radioactive iodine, I<sup>131</sup>, in the study of normal and disordered thyroid function in man. *J Clin Endocr* 9:342-54, 1949.
6. Schussler GC: Thyroid function tests in nonthyroidal disease. *Thyroid Today*, Vol. 3, No.3, June 1980.
7. Gregerman RI, Davis PJ: Effect of intrinsic and extrinsic variables on thyroid hormone economy, ch. 12. In: *The Thyroid* Werner SC, Ingbar SH, (eds), Harper & Row, Hagerstown, Md, 4th edition, 1978.
8. Chopra IJ, Chua TGN, Nguyen A et al: In search of an inhibitor of thyroid hormone binding to serum proteins in nonthyroidal illnesses. *J Clin Endocrinol Metab* 49:63-9, 1979.
9. Bermudez F, Surks MI, Oppenheimer JH: High incidence of decreased triiodothyronine concentration in patients with nonthyroidal disease. *J Clin Endocrinol & Metab* 41:27-40, 1975.
10. Pittman CS, Lindsay RH, Senga O et al: The effects of diabetes mellitus on the 3-5-3'-triiodothyronine production. *Life Sciences* 28:1677-82, 1981.
11. Chopra IJ, Wiersinga W, Frank H: Alterations in hepatic monodeiodination of iodothyronines in the diabetic rat. *Life Sciences* 28:1765-76, 1981.
12. Gavin LA, Rosenthal M, Cavalieri RR: The diagnostic dilemma of isolated hyperthyroxinemia in acute illness. *JAMA* 242:251-3, 1979.
13. Kaptein EM, Wheeler WS, Spencer CA, et al: Thyroid hormone economy in critical illness. *Abstract 669, Program, 61st Annual Meeting, The Endocrine Society, Anaheim, CA, June 1979.*
14. Felicetta JV, Green WL, Cooper DS, Ridgway EC, Maloof F: Letters to the Editor: Value of free thyroxine index. *N Engl J Med* 302:1480-1, 1980.
15. Walfish FG, Orrego H, Israel Y et al: Serum triiodothyronine and other clinical and laboratory indices of alcoholic liver disease. *Ann Intern Med* 91:13-6, 1979.
16. Hepner GW, Chopra IJ: Serum thyroid hormone levels in patients with liver disease. *Arch Int Med* 139:1117-20, 1979.
17. Wilber JF, Benerji A, Prasad C et al: Alterations in hypothalamic-pituitary-thyroid regulation produced by diabetes mellitus. *Life Sciences* 28:1757-63, 1981.
18. Cahill GF, Jr: Role of T3 in fasted man. *Life Sciences* 28:1721-26, 1981.
19. Gardner DF, Kaplan MM, Stanley CA et al: Effect of triiodothyronine replacement on the metabolic and pituitary responses to starvation. *New Engl J Med* 300:579-84, 1979.



# Diagnostic Imaging Dilemma: Guidelines in Decision Making for the Primary Care Physician

John R. Siler, M.D.  
Kai Haber, M.D.  
Erwin M. Freundlich, M.D.

## Abstract

Diagnostic imaging has undergone such rapid growth in the last five years that proper utilization of the multiple modalities has become a tremendous challenge for both radiologists and primary care physicians. Deciding which diagnostic imaging method would be most efficacious as a screening procedure, which would be best as a secondary examination, then identifying those cases which need a more definitive study has been a problem facing physicians in small community hospitals and large teaching centers alike.

One approach to the dilemma has been the derivation of decision algorithms for the efficient and cost effective radiological evaluation of certain clinical problems. These algorithms, when used as guidelines, represent a reasonable way to proceed in a large majority of patients, based on recent literature review, consultation with clinical experts, and the personal experience of the faculty of the Department of Radiology at the University of Arizona Health Science Center.

**Key Words:** Diagnostic Imaging; Decision Making; Algorithms.

In the last five years, advances in diagnostic imaging techniques have been phenomenal. Indications are that rapid growth will continue and, indeed, may accelerate. This poses a tremendous challenge for the radiologist who must master new imaging techniques and integrate them with established ones in order to provide state-of-the-art consultative service. For the primary care physician, who must choose from a myriad of diagnostic studies, the problem of selecting the appropriate imaging modality for a given clinical problem is becoming increasingly complex. It is the purpose of this paper to provide guidelines in decision making, in the form of algorithms, in order to aid the primary care physician in his diagnostic evaluation.

The current literature contains numerous articles evaluating various imaging methods in different disease states. However, proper utilization of these methods remains an issue at all levels of medical care. One approach has been to devise algorithms for given clinical problems. A set of algorithms has been published recently that represents the experience of one hospital.<sup>1</sup> In evaluating those algorithms the faculty of diagnostic radiology, nuclear medicine, and ultrasonography found them useful but not entirely applicable for our institution. Therefore, a set of algorithms was derived based on a careful literature review, consultations with clinical experts, and the personal experience of several faculty members. They are now being used by the clinical faculty and housestaff as guidelines in patient evaluation. Since many of the imaging modalities discussed are becoming increasingly available outside major referral centers, it was felt that these algorithms would be useful to primary care physicians across the state. To demonstrate the use of this approach several selected clinical problems will be illustrated with case material. The diagnostic imaging armamentarium to be considered includes fast-scan computed tomography (CT), real-time and static ultrasonography, and nuclear imaging, both dynamic and static. Routine radiography, of course, is included where applicable. The algorithms are grouped together at the end for easier reference.

Many factors play a role in the selection of an initial examination. Thin patients are the best candidates for ultrasonography while patients with sufficient body fat to provide separation of tissue planes make optimal CT subjects. Obese patients are often difficult to evaluate with ultrasonography as the ultrasound beam is diffracted and not able to penetrate tissues well enough to visualize deep lying anatomy. Nuclear radiology is less often affected by body habitus and offers the advantage of providing both physiologic and morphologic information in certain circumstances. However, anatomic details are lacking. Cost effectiveness and degree of invasiveness are other factors also taken into consideration.

From: University of Arizona Health Sciences Center, Department of Radiology, Tucson, Arizona 85724. Dr. Haber is a James Picker Foundation Scholar.

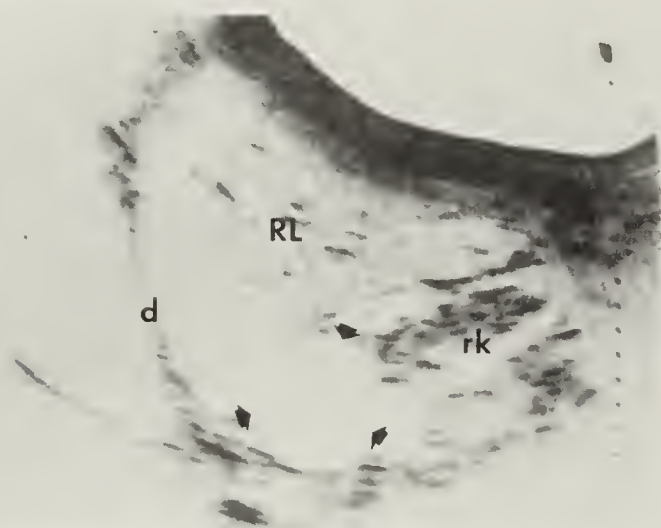


Figure 1

Renal cyst in an 84 year old male. Longitudinal sonogram of right kidney. Cyst in upper pole of kidney (rk) is echo free (arrows). RL = right lobe of liver, d = diaphragm.

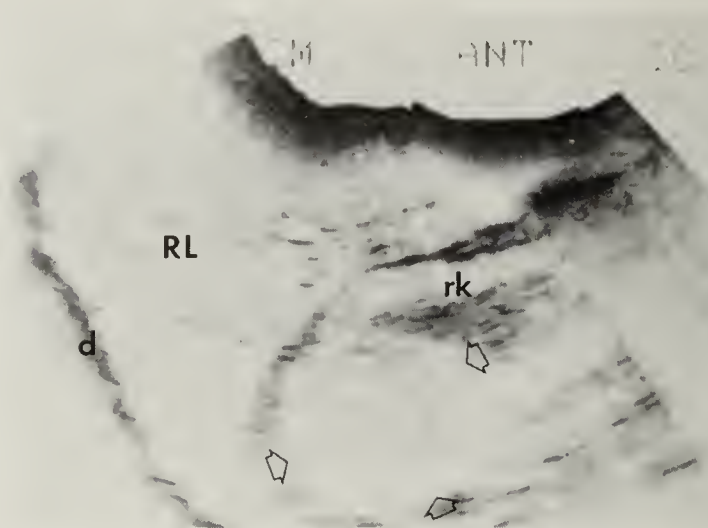


Figure 2

Renal cell carcinoma in 64 year old. Longitudinal sonogram demonstrates echogenic mass (open arrows) in upper pole of right kidney (rk). RL = right lobe of liver, d = diaphragm.

### Renal Masses

When a renal mass is suspected on an excretory urogram, it is important to confirm its presence and to determine whether it is solid or cystic.<sup>2</sup> Most solid masses represent tumor, usually malignant, while the majority of cystic lesions are benign. The initial procedure of choice is ultrasonography. Not only can it confirm the presence of the mass but can readily determine whether it is cystic or solid. (Figures 1 and 2). In addition, real-time ultrasonography provides a reliable and rapid method of localizing a suspected cyst for percutaneous aspiration. (Figure 3). The fluid obtained is sent for cytological evaluation for further confirmation of the cyst's benign nature. In some cases, iodinated contrast material and air are injected into the cyst following removal of the fluid with subsequent radiographic examination of its inner lining. (Figure 4)

If dehydration or obesity limits satisfactory imaging by ultrasonography and the results are indeterminate, a radionuclide renal scintigram can provide morphologic confirmation of a mass but cannot differentiate among cystic and solid lesions. However, CT can differentiate between cystic and solid renal masses and cyst puncture in appropriate cases can be carried out under CT guidance. Both CT and ultrasound can visualize the perirenal anatomy and can identify extension of neoplasm into the inferior vena cava and regional lymph nodes. Angiography may then be used to determine the vascularity of a mass and to identify vascular anatomy prior to operative intervention.

### ? Acute Cholecystitis

Ultrasonography is our initial procedure of choice, as this modality can produce detailed images of the gallbladder (Figure 5a) and adjacent anatomy.<sup>3</sup> Cholecystitis is readily detected by demonstration of cholelithiasis (Figure 5b) or a thickened gallbladder wall.<sup>4</sup> (Figure 5c) These findings do not differentiate

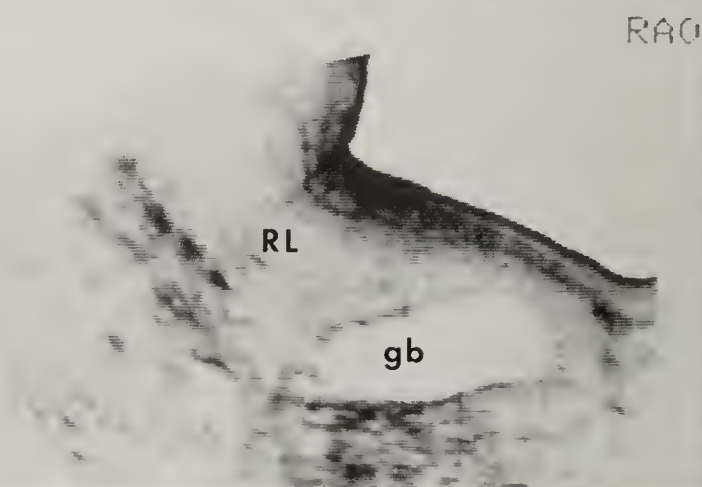


Figure 5a

Right anterior oblique longitudinal sonogram. Normal gallbladder (gb). Note echo free lumen and thin wall. RL = right lobe of liver.

between acute and chronic cholecystitis but can be correlated with the patient's clinical presentation for an accurate diagnosis. However, the patient presenting with right upper quadrant pain may have pathology of the pancreas, kidneys, liver, or common bile duct rather than the gallbladder. Ultrasonography offers the advantage of visualizing these areas without risk.

A small percentage of patients with right upper quadrant pain will have acalculous cholecystitis and may be missed by ultrasonography. If clinical suspicion remains high and ultrasonography is normal or indeterminate, a radionuclide hepatobiliary study can demonstrate acute cholecystitis with high reliability. Radionuclides such as 99m-Technetium HIDA or 99m-Technetium-PIPIDA are excreted rapidly into the bile following intravenous injection. Diffuse hepatic parenchymal uptake is followed by appearance of activity in the biliary ducts, gallbladder, and common bile duct within 20-30 minutes (Figures 6a and 6b). Activity



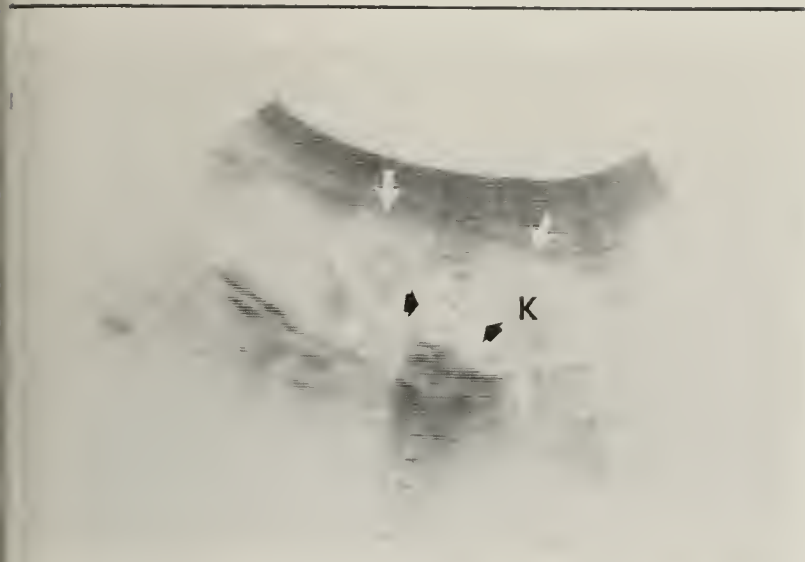


Figure 3

Static prone longitudinal sonogram of left kidney (white arrows) with a cyst (black arrows). Centimeter markers give accurate depth of cyst for safe and reliable needle aspiration. k = kidney.

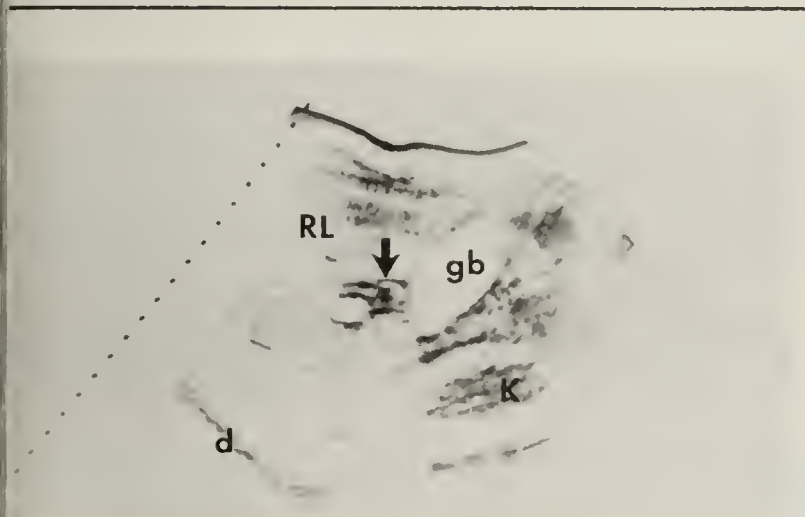


Figure 5b

Longitudinal sonogram in patient with right upper quadrant pain. Gallbladder (gb) is echo free but echo dense stone (arrow) is visualized in cystic duct. RL = right lobe of liver. k = right kidney. d = diaphragm.

is subsequently visualized in the small bowel. Normal visualization of the gallbladder excludes acute cholecystitis with a low false-negative rate. Nonvisualization of the gallbladder represents acute cholecystitis in the majority of patients (Figure 6d and e). In chronic cholecystitis the study may be normal or may show delayed visualization of the gallbladder.

A hepatobiliary radionuclide study can also determine patency of the common bile duct. Failure to visualize small bowel activity frequently represents common bile duct obstruction either by stone or tumor. However, hepatocellular disease also may prevent sufficient excretion to visualize activity within the bowel. Scintigrams obtained shortly after intravenous administration of the radionuclide may also demonstrate space occupying lesions. No contraindications, complications, or adverse reactions have been reported so far and reliable imaging can be obtained despite elevated bilirubin levels.



Figure 4

Abdominal radiograph showing renal cyst (white arrows) that has been filled with iodinated contrast (c) after percutaneous needle aspiration. Lining of cyst is smooth even though contour is slightly irregular.



Figure 5c

Oblique gallbladder sonogram demonstrating gallbladder (g) with thickened wall (open arrows) and two echo dense stones (black arrows). RL = right lobe of liver.

### The Solitary Pulmonary Nodule

The use of a decision making process is critical in the approach to the diagnosis of a solitary pulmonary nodule. Absolute, major, and minor criteria of malignancy or benignity can be developed and based on them, a nodule can be classified benign, probably benign, probably malignant, or malignant. For example, cigarette smoking, asbestos exposure, and a mass larger than 3cm are, among others, major criteria of malignancy. Central, laminated, or speckled calcification on the other hand is considered a criterion of benignity, but most radiographic features have been given minor status. Of critical importance, however, is not whether a criterion is major or minor but is the establishment of a system; a system which by using CT and needle aspiration biopsy a diagnosis can be made without thoracotomy.

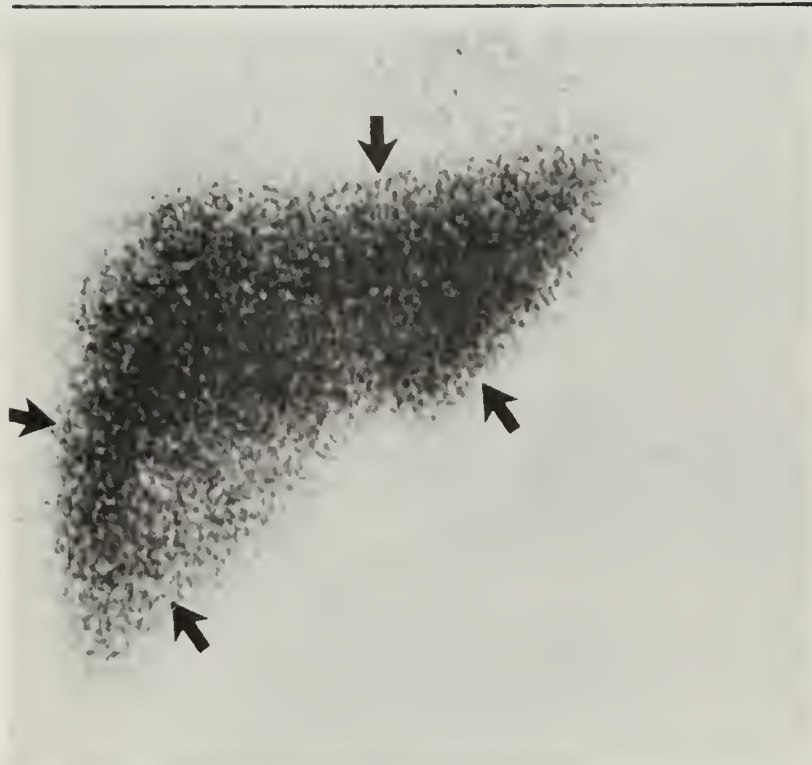


Figure 6a

Early scintiphoto of liver (arrows) showing normal diffuse uptake of radiotracer,  $^{99m}\text{Tc}$ -PIPIDA, in the hepatic parenchyma.

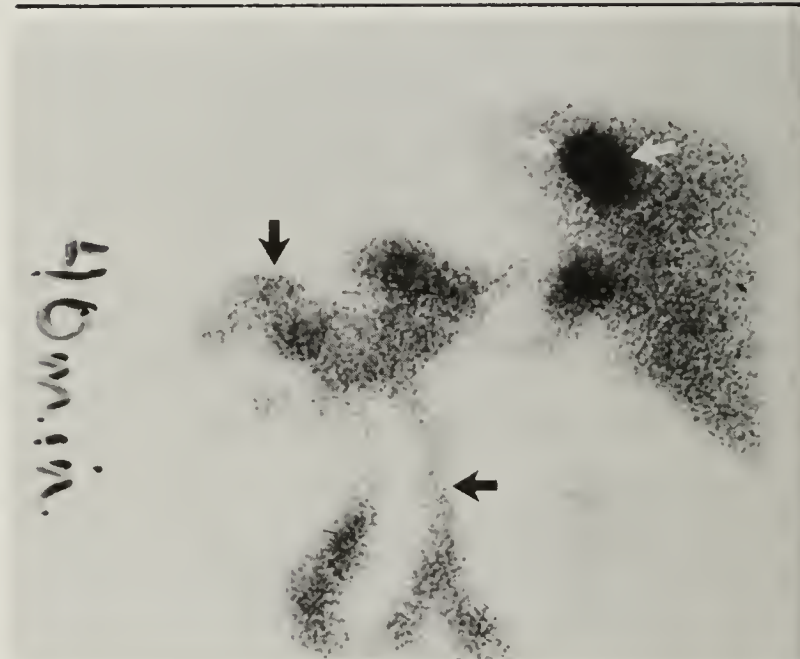


Figure 6b

Scintiphoto taken 40 minutes after administration of  $^{99m}\text{Tc}$ -PIPIDA. Normal appearance of radiotracer in gallbladder (white arrows) and small bowel (black arrows).

Computed tomography is gaining increasing importance in the evaluation of pulmonary masses. By utilizing 5mm tomographic slices through a solitary pulmonary nodule, the highest CT number within the mass can be determined (Figure 7a and 7b). Although the method is thus far unproved, and is a modification of the one proposed by Siegelman,<sup>6</sup> preliminary investigation has shown that solitary masses having a highest CT number greater than 82 (GE 8800 CT scanner) are benign. This is presumed to be secondary to diffuse microcalcification. Masses with a CT number less than 82 are indeterminate and may represent benign or malignant lesions. Percutaneous biopsy is recommended as the next step in the evaluation of such a mass. Masses fulfilling benign criteria should be followed by serial routine radiographs.

#### Summary

Decision making in diagnostic imaging has become complex but, if given sufficient attention, cannot only be medically rewarding but time saving and cost effective as well. Algorithms have been devised to assist in decision making under multiple clinical circumstances. Some are complex but others are relatively simple. For example, evaluation of most abdominal aortic

aneurysms is easily accomplished with ultrasonography, a noninvasive procedure. Other algorithms are more complex, for example, the evaluation of poorly functioning kidneys may involve multiple imaging modalities. Ultimately, the algorithms should provide the most efficient and rewarding approach to a large majority of patients.

Cost effectiveness played an important role in the design of the algorithms. The relative cost and chance of success of different modalities in a given situation were taken into consideration. To illustrate this point, CT with intravenous contrast enhancement can easily detect an abdominal aortic aneurysm but is twice the cost of ultrasonography. The small minority of patients who cannot be diagnosed by ultrasonography can be examined by CT or intravenous angiography.

As imaging technology continues to rapidly advance, the consultative role of the radiologist will become increasingly important. The radiologist using his experience and knowledge of the limitations of various imaging procedures, should discuss the clinical problem with the referring physician and determine which diagnostic modality will best answer the clinical question.





Figure 6c

Normal appearing early scintiphoto of liver (black arrows) in a 67 year old male with right upper quadrant pain.



Figure 6d

Scintiphoto at 40 minutes shows small bowel activity (black arrow) and no gallbladder uptake. Patient had acute cholecystitis at surgery. Defect (white arrows) along costal margin of right lobe of liver may represent gallbladder.

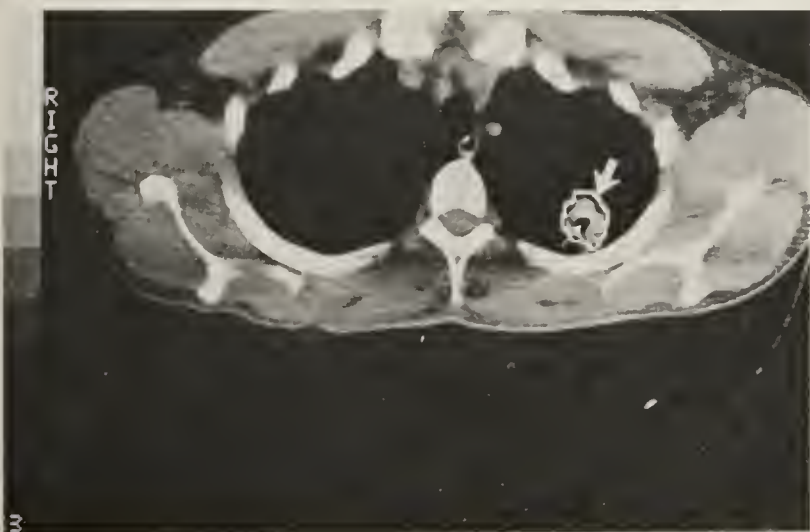


Figure 7a

CT scan of the thorax, axial projection. Patient is a 26 year old male with left upper lobe nodule on plain chest film. Nodule (large arrow) demonstrates cavity (small arrow) and patient had a positive serology for coccidioidomycosis.

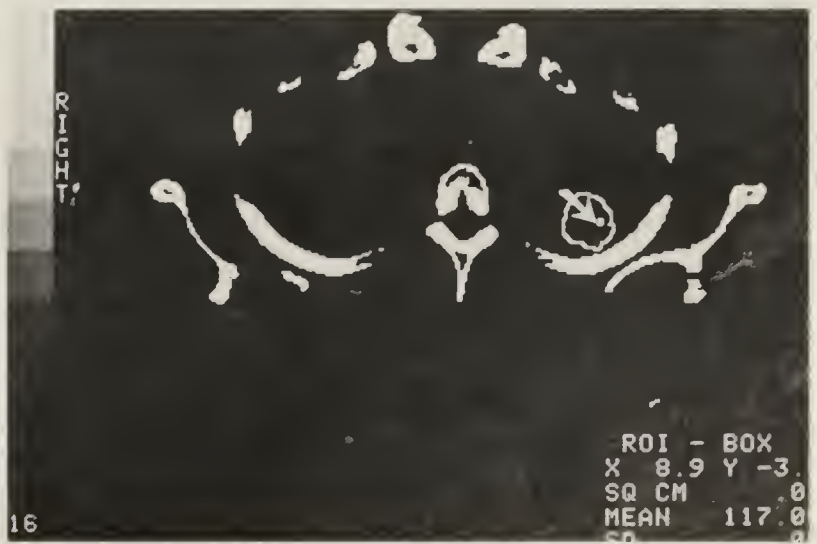


Figure 7b

Same CT scan demonstrating highest CT number in mass (arrow). The CT number measures 117 indicating presence of calcification in a benign coccidioidomycosis granuloma.

## Acknowledgement

We thank Drs. Tim Hunter, Gerald Pond, Bruce Hillman and Greg Campion for their respective contributions. We also thank Janet Quinones for typing this manuscript.

## Appendix

The following decision algorithms are derived from

the experience of the University of Arizona Health Sciences Center and represent the combined efforts of the Divisions of Diagnostic Radiology, Ultrasound, and Nuclear Medicine.

Irwin M. Freundlich, Director, Diagnostic Radiology  
Kai Haber, Director, Ultrasound  
Dennis Patton, Director, Nuclear Medicine.

CHART 1      ? Abdominal Aortic Aneurysm

Plain abdominal radiographs *not* necessary.

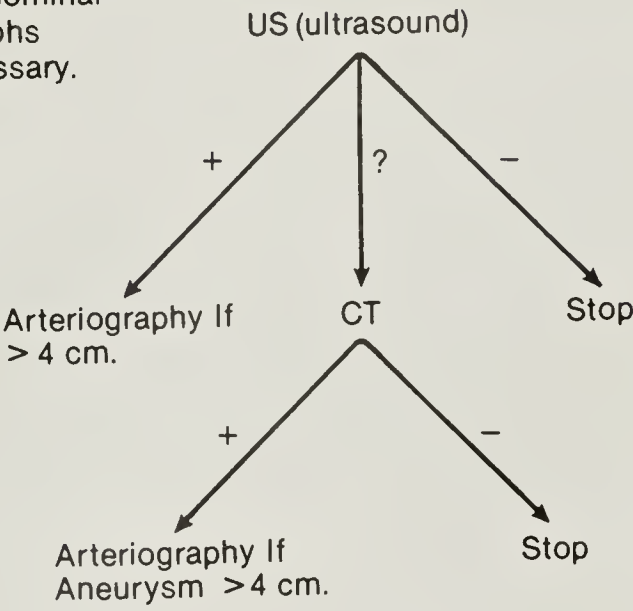
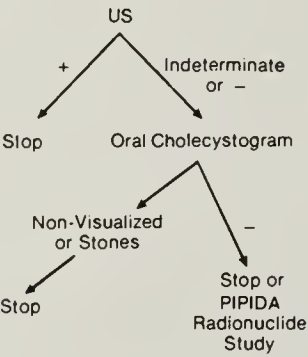
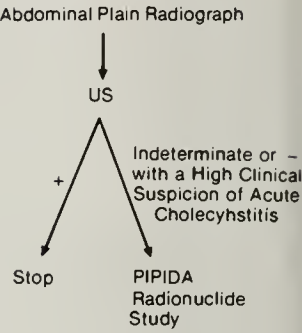


CHART 3

Chronic Cholecystitis or Gallstones



RUQ Pain  
? Acute Cholecystitis



Obstructive Jaundice

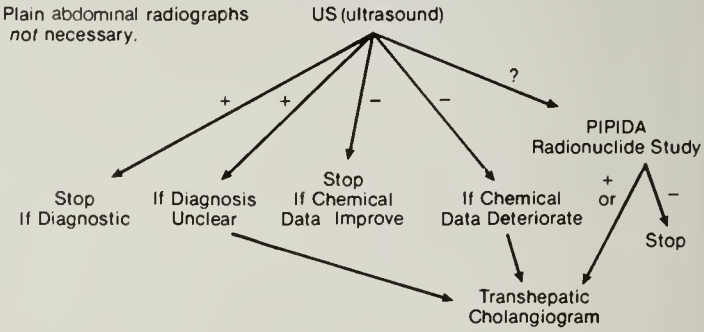
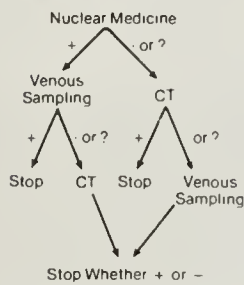


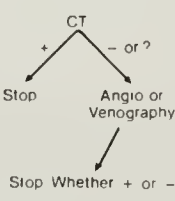
CHART 2

ADRENAL

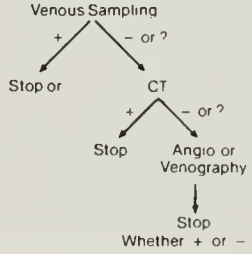
Cushing Syndrome/  
Conn's Syndrome/  
Adrenogenital Syndrome



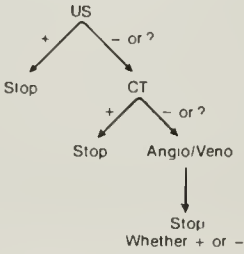
Metastases/  
Non-Functioning Tumors



Pheochromocytoma



Cyst/Adrenal Hemorrhage



Addison's

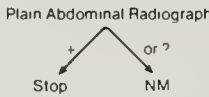
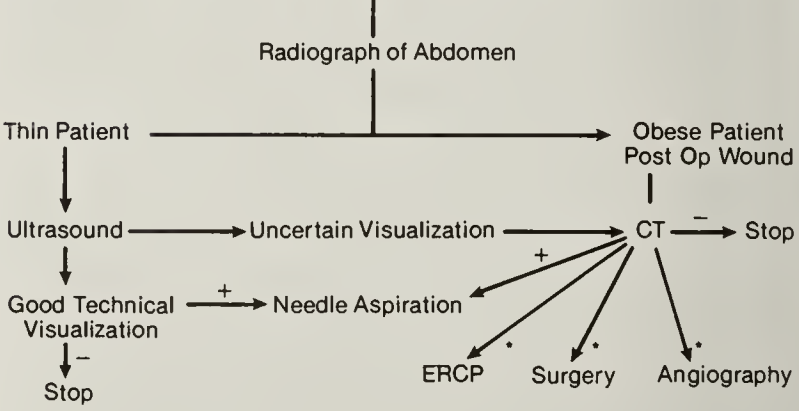


CHART 4

Suspected Pancreatic Mass



\*These studies may be performed in selected cases where more anatomic detail is needed or where the diagnosis remains uncertain.



CHART 5 Peripheral Pulmonary Mass

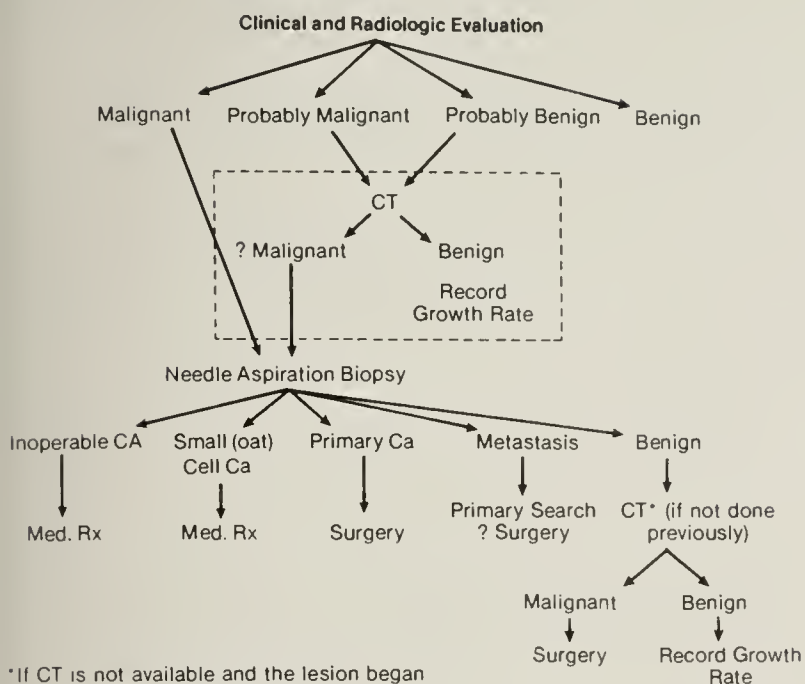
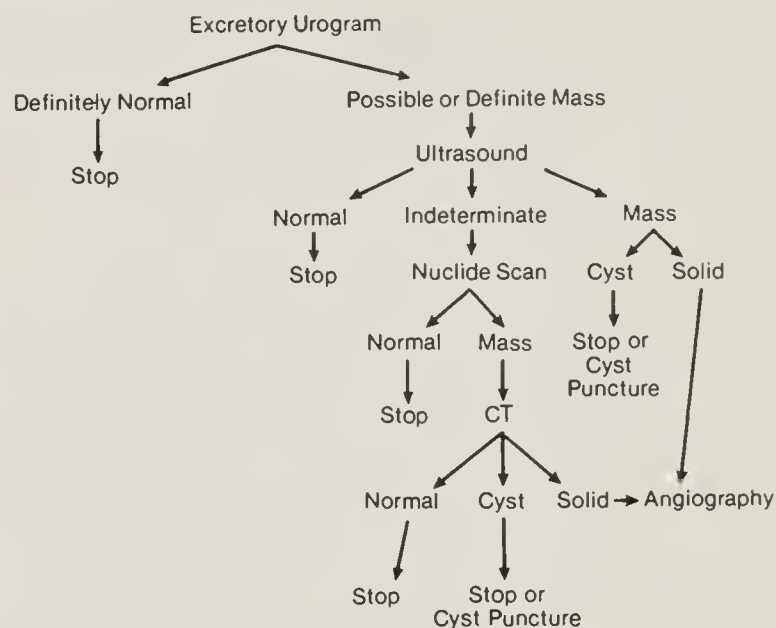


CHART 7 Renal Mass

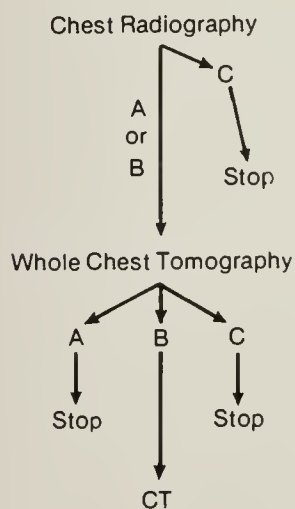
Clinical presentation; palpable mass, hematuria, pain, plain film finding



## Appendix

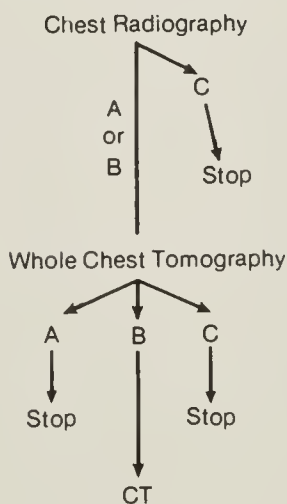
CHART 6

### Staging for Neoplasm (Pulmonary)



A—Normal  
B—Questionable Neoplastic Lesions  
C—Multiple Neoplastic Lesions

### ? Pulmonary Metastases



A—No Metastases  
B—Not Too Numerous for Surgery  
C—Too Numerous for Surgery

CHART 8

Poorly Functioning Kidneys

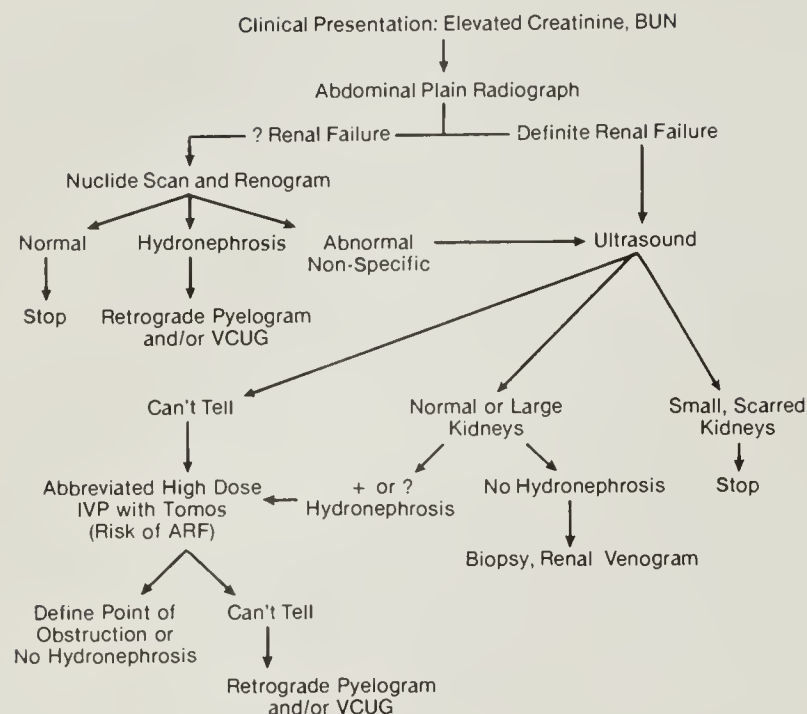
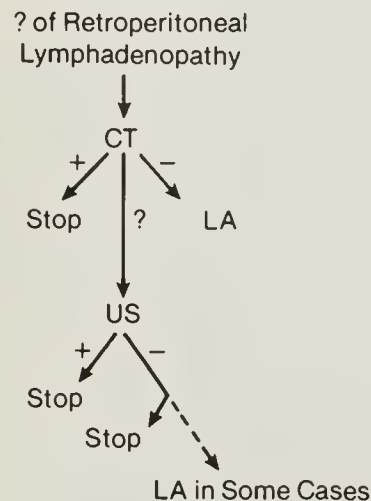


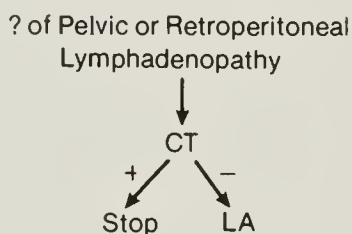
CHART 9

Known Lymphoma



LA—Lymphangiogram  
US—Ultrasound

Known Pelvic Ca



LA—Lymphangiogram

References

1. Whalen J: Radiology of the abdomen: Impact of new imaging methods. *AJR* 133:585-618, Oct 1979.
2. Pollack H, et al: A systematized approach to the differential diagnosis of renal masses. *Rad* 113:653-659, Dec 1974.
3. Berk RN, Leopold GR: The present status of imaging of the gallbladder. *Invest Radiol* 13:477-489, Nov-Dec 1978.
4. Handler S: Ultrasound of gallbladder wall thickening and its relation to cholecystitis. *AJR* 132:581-585, Apr 1979.
5. Weissman HS, et al: Rapid and accurate diagnosis of acute cholecystitis with <sup>99m</sup>Tc-HIDA Cholescintigraphy. *AJR* 132:523-528, Apr 1979.
6. Seigelman S, et al: Computed tomography of the solitary pulmonary nodule. *AJR* 135:1-13, July 1980.
7. Wheeler WE, et al: Angiography and ultrasonography: A comparative study of abdominal aortic aneurysms. *AJR* 126:95-100, 1976.
8. Dunnick NR, et al: Preoperative diagnosis and localization of aldosteronomas by measurement of corticosteroids in adrenal venous blood. *Rad* 133:331, 1979.
9. Korobkin M, et al: Computed tomography in the diagnosis of adrenal disease. *AJR* 132:231, 1979.
10. Sample WF: Adrenal ultrasonography. *Rad* 127:461-466, May 1978.
11. Goldberg HI, et al: Capability of CT body scanning and ultrasonography to demonstrate the status of the biliary ductal system in patients with jaundice. *Rad* 133:731-737, 1978.
12. Muhletaler C, et al: Diagnosis of obstructive jaundice with non-dilated bile ducts. *AJR* 134:1149, June 1980.
13. Muhm JR, Brown LR, Crowe JK, et al: Comparison of whole lung tomography and computed tomography for detecting pulmonary nodules. *AJR* 131:981-984, Dec 1978.
14. Marangola JP: Ultrasonic evaluation of the unilateral non-visualized kidney. *AJR* 126:853-862, 1976.
15. Burney Bt, et al: Ultrasound and computed tomography of the abdomen in staging and management of testicular carcinoma. *Rad* 132:415-419, Aug 1979.
16. Zelch MG, et al: Clinical comparison of CT and lymphangiography for detection of retroperitoneal lymphadenopathy. *Rad Clin N Am* 157-69, Apr 1979.



# Diagnostic Electron Microscopy

Claire M. Payne, Ph.D.  
Raymond B. Nagle, M.D., Ph.D.

## Abstract

This review is aimed at illustrating the large number of instances in which electron microscopy has been useful in patient care and diagnosis. The five major areas of diagnostic pathology in which electron microscopy has been most helpful are discussed. These include microbiology, hematology, neuromuscular diseases, renal biopsies and neoplasms. Representative electron micrographs from our department's patient files are included to illustrate each of these major areas. These examples have been supplemented by reference to pertinent case material in the published literature.

**Key Words:** Diagnosis; Electron, Microscopy.

The impact of electron microscopy in the diagnosis of renal disease and viral infections has been realized for many years. The value of the electron microscope, however, in the diagnosis of undifferentiated tumors, in diagnostic hematology and in the diagnosis of neuromuscular disease has only recently been fully documented and understood. The field of diagnostic electron microscopy is constantly expanding, not only by its application to different organ systems but by the development of specialized techniques such as ultrastructural cytochemistry, immunocytochemistry, computerized image analysis systems and energy dispersive x-ray analysis. We have had the opportunity over the past eight years to explore the value of electron microscopy in many patient care related areas and now accession approximately 800 cases per year. The following review encompasses our experience in the five major areas of diagnostic electron microscopy with selected examples from the literature.

## Microbiology:

The vast majority of our diagnostic work in the field of microbiology involves the identification of viral particles in various clinically-related settings. Although one often thinks of electron microscopic procedures as being time-consuming, this is one area where a rapid diagnosis is possible using the technique of negative staining with

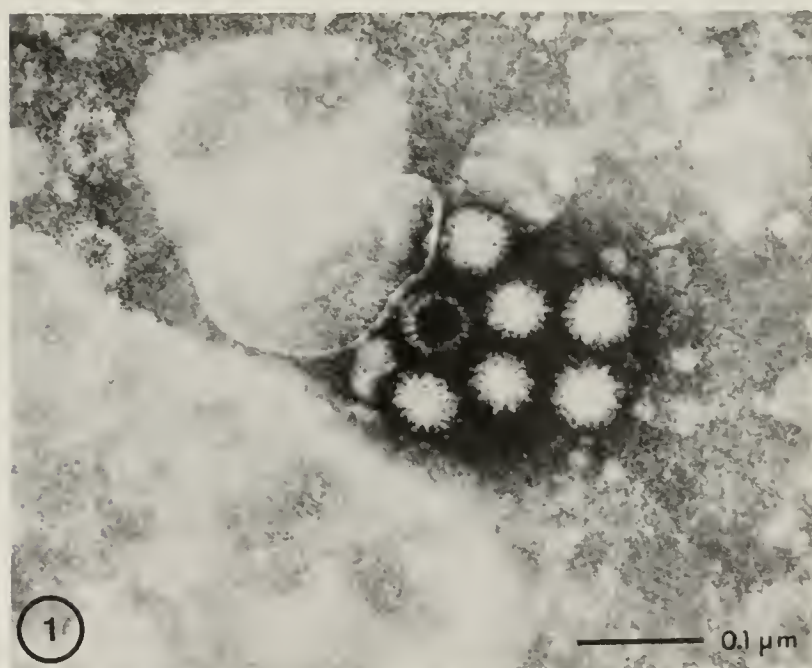


**Figure 1**

Negative contrast image of a cluster of Rotavirus particles found in the stool of a child with gastroenteritis. The double-shelled nature of the virus is clearly shown in the one particle which is completely penetrated by stain. The arrangement of capsomeres to form rings is characteristic of this virus group. (Phosphotungstic acid; original magnification, X 173,800)

phosphotungstic acid. There are now seven morphologically distinct viral particles identifiable in stool specimens of children with gastroenteritis. These include rotavirus (Figure 1), the parvovirus/picornavirus group, adenovirus, coronavirus, astrovirus, calicivirus and small rotavirus-like particles. Most of these viruses have been proven to be the pathologic agents responsible for the symptoms of vomiting and diarrhea. The diagnosis of viral gastroenteritis is dependent on the direct electron microscopic examination of stool specimens since attempts to grow these viruses in tissue culture have been largely unsuccessful.<sup>1</sup> Since a virus can be placed into a distinct virus group by virtue of its size and capsomere pattern, both of which can be determined by direct examination under the electron microscope, a diagnosis of viral gastroenteritis can be made within two hours after receiving the specimen in the laboratory. This is also true of vesicle fluid which can be directly examined on a grid without the necessity of embedding in epoxy resins and ultrathin sectioning, both of which are time-consuming procedures. Numerous membrane-bound herpes viruses present in vesicle fluid obtained from a woman on cancer chemotherapy are shown in Figure 2. This virus probably represents herpes zoster which is very difficult to grow in tissue culture.

In selected cases we have applied the techniques of immune electron microscopy in order to: 1) determine the etiologic role of a given virus in a patient's illness by demonstrating viral aggregation using the patient's convalescent serum, and 2) to serotype a given virus using antibody directed against specific surface antigens.

From: University of Arizona Health Sciences Center, Department of Pathology, Tucson, Arizona 85724



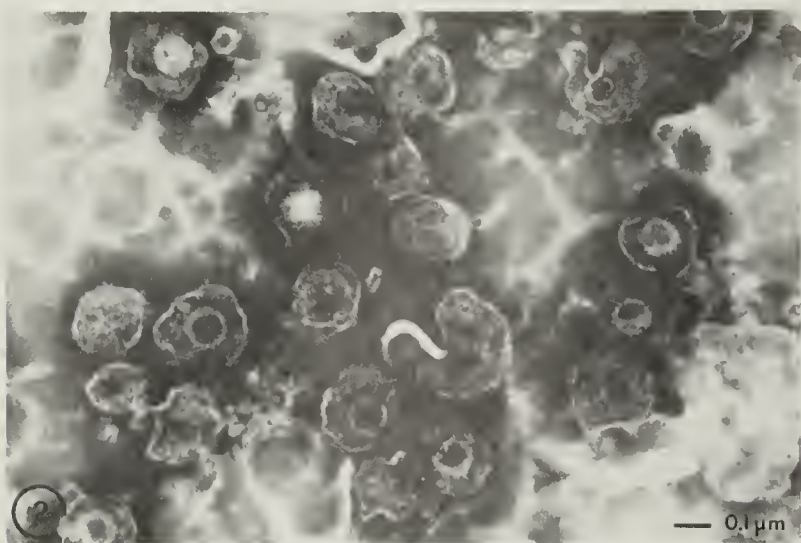


Figure 2

Negative contrast image showing numerous membrane-bound herpes viruses present in vesicle fluid obtained from a patient on anti-cancer chemotherapy. (Phosphotungstic acid; original magnification, X 62,600)

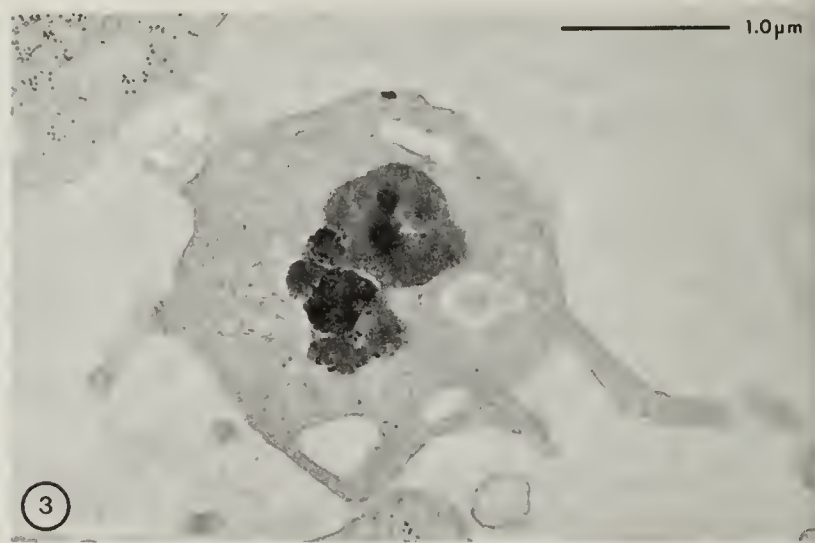


Figure 3

Electron micrograph of a circulating platelet from a patient with preleukemia. A giant fusion granule is present in the platelet cytoplasm. The outlines of eight individual granules can be seen within the matrix of the giant granule. The increased densities within the granule correspond to the nucleoids of the component  $\alpha$ -granules. (Uranyl acetate, lead citrate; original magnification, X 31,300)

The more time-consuming procedure of embedding and ultrathin sectioning is nevertheless invaluable in diagnosing viral infections in tissue specimens. Using this technique, viruses have been identified in brain biopsies of patients with encephalitis, papovaviruses in progressive multifocal leukoencephalopathy (PML) and measles virus in multiple sclerosis and subacute sclerosing panencephalitis (SSPE). Papovavirus can be identified in common warts and poxvirus in skin biopsies of patients with molluscum contagiosum.<sup>2,3</sup>

In the field of bacteriology, we have used electron microscopy mainly for two purposes. 1) The India ink technique, commonly used at the light microscopic level to determine the degree of encapsulation of various bacterial species, can sometimes be misleading. The presence of a capsule, however, can be confirmed at the ultrastructural level using a carbohydrate stain adapted for electron microscopy; 2) the negative staining technique using phosphotungstic acid can also be applied to whole mount preparations of bacteria to determine the form of flagellation (polar vs. peritrichous).

There are numerous examples from the literature where electron microscopy has been used to: 1) identify an unusual bacterium as in Whipple's disease; 2) identify a particular organism in fixed tissue in which concurrent tissue culture studies were not performed or were negative (i.e. *Leishmania*, *Toxoplasma*, *Giardia*) and 3) to help classify Gram-negative and Gram-positive organisms in the new divisions of Prokaryotae whose wall structure is unusually thin, unusually thick or missing (*Gracilicutes*, *Firmacutes*, and *Mollicutes*, respectively).<sup>4</sup>

#### Hematology:

One of the most valuable uses for the electron microscope in diagnostic hematology is in delineating the cell of origin of various hematopoietic malignancies. The identification of Birbeck or Langerhans' granules in many neoplastic cells is diagnostic of Histiocytosis X<sup>5</sup>;

the presence of Auer rods signals a chloroma; the observation of ribosome-lamellae complexes is characteristic of hairy cell leukemia; the presence of numerous dumbbell-shaped granules, microfilaments and irregular nuclear contours is a consistent finding in monocytic leukemia, and numerous lipid droplets and polyribosomes are characteristic of Burkitt's lymphoma. In the differential diagnosis of leukemias, ultrastructural cytochemistry can sometimes be very helpful. The presence of peroxidase in the cisternae of the rough endoplasmic reticulum and in the perinuclear cisternae is diagnostic of a non-lymphoblastic leukemia. In distinguishing mycosis fungoides from a B-cell lymphoma invading the skin or from a non-specific dermatitis, we have found a quantitative ultrastructural evaluation of the degree of nuclear convolutions to be essential. Pre-leukemia is a condition in which the bone marrow picture can be very suggestive of an impending myeloproliferative disorder. Examination of the patient's circulating platelets under the electron microscope can help confirm that impression. The presence of large fusion granules (Figure 3) derived from the fusion of many platelet  $\alpha$ -granules or lysosomes is diagnostic of preleukemia.<sup>6</sup> Once overt leukemia has occurred, they become diagnostic of a non-lymphoblastic leukemia.

Another valuable contribution of electron microscopy is in the diagnosis of platelet storage pool disease. In this disorder there are decreased numbers of platelet dense bodies which help explain the failure of platelets to elicit a second wave of aggregation during *in vitro* platelet testing.<sup>7</sup> In order to identify platelet dense granules under the electron microscope, a special fixative containing calcium ions or overnight incubation in a medium containing uranyl ions is mandatory.

Several storage diseases can be diagnosed by



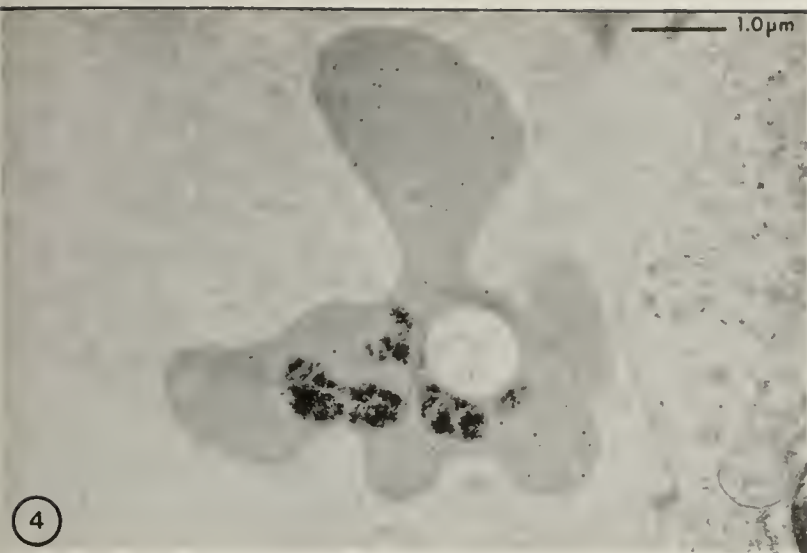


**Figure 4**

Electron micrograph of a reticulocyte obtained from the peripheral blood of a patient with sideroblastic anemia. An autophagic vacuole and four mitochondrial profiles are present. Each mitochondrial matrix is filled with an electron-dense material which represents the accumulation of iron. (Uranyl acetate, lead citrate; original magnification, X 17,400)



**Figure 5**

Electron micrograph of a muscle fiber from the quadriceps muscle of a patient with nemaline myopathy. Many electron-dense bodies cut in various planes of section can be seen in a sub-sarcolemmal location. The square profile (arrow) represents the cross-section of a rectangular profile similar to the one shown at the right. The similarity between the electron-density of the rod bodies and Z-bands is apparent. (Uranyl acetate; lead citrate; original magnification, X 8,300)

ultrastructural examination of hematopoietic cells residing in the bone marrow or in the peripheral circulation. In Gaucher's disease, the fibrillar material seen in macrophages by light microscopy has a tubular substructure by electron microscopy and is characteristic of glucocerebrosides. The lamellar substructure of packed sphingomyelins is characteristic of Niemann-Pick disease and lamellae with a certain periodicity is characteristic of Sea-Blue Histiocytosis, to name just a few. Although the specific enzymatic defects in these disorders must await biochemical analyses, ultrastructural examination of the stored material in the lysosomes of hematopoietic cells can reduce the number of tests that must be performed by the biochemist.

Several congenital dyserythropoieses are now classified by the ultrastructural pathological appearance of the erythroblasts. In some instances the dyserythropoiesis has been explained by the presence of septate-like junctions between erythroblasts preventing their escape from the bone marrow. In other instances the defect has been found in the nuclear membrane where widened nuclear pores alter nuclear-cytoplasmic interaction and even allow the escape of chromatin into the cytoplasm.

The light microscopic diagnosis of sideroblastic anemia is dependent to a large extent on the presence of ringed sideroblasts using the Prussian blue stain. The ring which forms around the nucleus is composed of iron-laden mitochondria and indicates an improper utilization of iron stores by red cell precursors. In the absence of ringed sideroblasts one cannot distinguish between normal siderosomes and abnormal mitochondria at the light microscopic level. The identification of iron deposits within the mitochondrial matrix using electron microscopy, however, always signals a pathological process (Figure 4).<sup>8</sup>

### Neuromuscular Diseases:

Diseased muscle tissue was initially examined under the electron microscope with the hope of finding some specific change or inclusion which might be diagnostic of a particular disease. It was also hoped that some pattern of changes would emerge which would distinguish a neurogenic from a myopathic process. It has now become evident that there are many overlapping non-specific pathologic changes in muscle cells<sup>9</sup> rendering a specific diagnosis impossible in most cases. Nevertheless, electron microscopy can reveal subtle changes in muscle pathology (i.e. Z-line smearing) in cases where the light microscopy appears normal.

One area where electron microscopy has proved to be invaluable has been in the diagnosis of the congenital hypotonias and myopathies. Of the ten well recognized "nonprogressive" congenital myopathies, six were defined only after ultrastructural examination of the muscle tissue. These include central core disease, nemaline myopathy, megaconial and pleoconial myopathy, multicore disease, fingerprint body myopathy<sup>10</sup> and sarcotubular myopathy. Nemaline myopathy is characterized at the light microscopic level by the presence of rod-shaped bodies present mostly in a sub-sarcolemmal location. Since these bodies have no distinct histochemical features, ultrastructural examination is necessary to define them as an anomaly of the Z-band<sup>11</sup> (Figure 5).

Another area where electron microscopy has been shown to be helpful is in the glycogen storage diseases. The presence of numerous membrane-bound vacuoles filled with glycogen particles (Figure 6) is virtually diagnostic of Pompe's disease or Type II glycogenosis.<sup>12</sup> The enzymatic defect in this disorder is  $\alpha$ -1,4-glucosidase, a lysosomal enzyme. The accumulation of glycogen therefore occurs within lysosomes as opposed



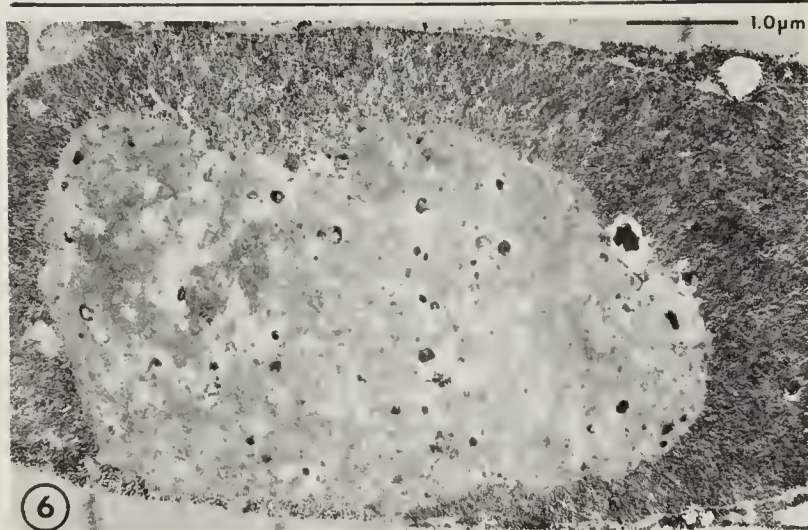


Figure 6

Electron micrograph of a muscle fiber from a patient with Pompe's disease of adult onset. A large vacuole filled with electron-dense glycogen particles is surrounded by a membrane and represents an autophagolysosome. The other partially-digested material within the vacuole represents the breakdown products of other normal lysosomal enzymes present in this cell. (Uranyl acetate; lead citrate; original magnification, X 20,900)

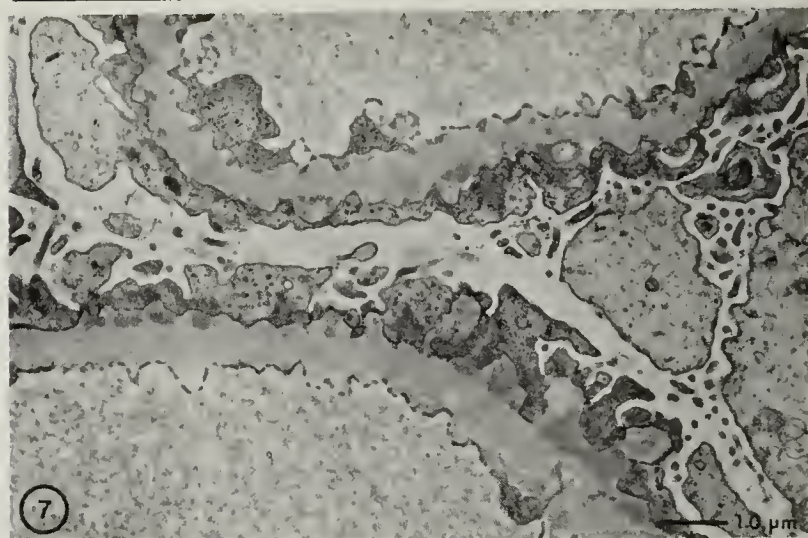


Figure 7

High power electron micrograph of two glomerular capillary loops obtained from a patient with early membranous glomerulonephritis. Numerous sub-epithelial deposits of varying size are present. Foot process simplification is evident over most of the capillary loop surface. (Uranyl acetate; lead citrate; original magnification, X 12,200)

to the predominantly extra-lysosomal accumulation seen in the other glycogen storage disease affecting muscle (i.e. muscle phosphorylase deficiency).

Electron microscopy may also aid in the diagnosis of certain metabolic myopathies. The presence of large numbers of mitochondria containing crystalline inclusions can confirm the clinical impression of hypermetabolism of non-thyroid origin. In the periodic paralyses, the identification of tubular aggregates within many muscle fibers is also of diagnostic significance.

Increased thickness of muscle capillary basement membranes is found in most adults with clinical evidence of diabetes mellitus. Basement membrane thickening is also found in over one-half of prediabetics.

### Renal Biopsies

Renal biopsies are studied routinely in our laboratories by light microscopy (employing a series of special stains), immunohistochemistry, and transmission electron microscopy. In this way we are able to provide the nephrologist with an accurate assessment not only of the morphologic diagnosis but also an assessment of the mechanism of the disease and the stage or activity of the disease process. The latter information is often most helpful, since the types of treatment available to the nephrologist are limited and the long range management of the patient may involve costly measures, such as chronic dialysis or renal transplantation. Electron microscopy is therefore warranted in most renal biopsies since it refines the impression gained by light microscopy and immunohistochemistry.

Electron microscopy is particularly useful in patients presenting with nephrotic syndrome. In the pediatric age group the most commonly encountered diagnosis is lipid nephrosis. The light microscopic findings and

immunohistochemical findings in this group are nondiagnostic. Electron microscopy reveals simplifications of the visceral epithelial cells with loss of pedicles and the presence of numerous villous processes projecting from the main cell mass. These patients have no evidence of electron dense immune complex deposition. In contrast the child or adult with early membranous glomerulonephritis would have electron dense deposits regularly deposited along the subepithelial aspects of the capillary basement membrane (Figure 7).

Early renal amyloidosis has been diagnosed in our laboratory on several occasions by the findings of the characteristic 9-10 nm filaments found along the subendothelial (Figure 8) and/or subepithelial aspects of the basement membranes. This diagnosis is often made in a setting of nephrotic syndrome without previous clinical suspicion of amyloidosis. Diffuse thickening of the capillary basement membranes and increased mesangial sclerosis may be the first indications of diabetes mellitus. In lupus erythematosus the renal manifestations vary widely from a normal appearing biopsy glomeruli to advanced diffuse proliferative glomerulonephritis. In nearly all these variants one is able to demonstrate tubuloreticular inclusions within endothelial cells.<sup>13</sup> Although these inclusions are not pathognomonic, on several occasions we have accurately predicted the diagnosis of lupus in the absence of other clinical findings.

There are at least three renal diseases which are diagnosed with great difficulty without electron microscopy. The first is progressive hereditary nephritis. This disease has been confused with the late stages of membranous glomerulonephritis or resolving post-infectious glomerulonephritis. In hereditary nephritis, electron microscopy reveals capillary



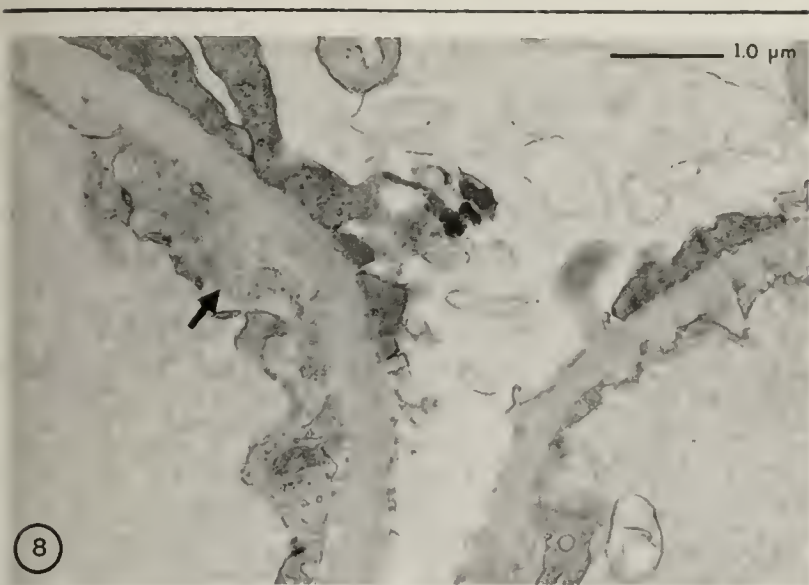


**Figure 8**

High power electron micrograph of two capillary loops obtained from a patient with amyloidosis. The wall of one of the loops is greatly thickened by the deposition of amyloid fibrils. The amyloid fibrils are identified by the characteristic pattern of intersecting rigid fibrils which are present here in a sub-endothelial location. (Uranyl acetate; lead citrate; original magnification, X 20,900)

basement membranes that are irregularly thickened with characteristic splitting of the basement membrane into two or three lamellae.<sup>14</sup> In the Nail-Patella syndrome, the basement membrane shows of irregular nodular thickening with intramembranous fibrillar deposits and lucent "moth-eaten" areas.<sup>15</sup> Finally in recent years there has been a reclassification of membrano-proliferative glomerulonephritis (MPGN).<sup>16</sup> The key to this was the recognition by electron microscopy of two types of capillary wall involvement. In Type I MPGN, there are subendothelial deposits and double contour basement membranes. In Type II MPGN, diffuse electron dense deposits are laid down on the basement membrane giving rise to the term 'Dense Deposit' disease.

### Neoplasms

Diagnostic electron microscopy is performed in our laboratory on poorly differentiated neoplasms in which the diagnosis could not definitely be made by light microscopy. The interpretation of the electron microscopic findings is dependent on the careful selection of the appropriate areas of the neoplasm and its proper fixation by the pathologist.

The maximum potential of this technique is realized only when the ultrastructural findings are integrated with gross and histologic findings as well as the clinical data. Only in this way can serious errors in diagnosis be avoided. If this procedure is followed, it is startling how frequently the light microscopic diagnosis is refined or even changed when ultrastructural examination is performed. For example, in one series as many as twenty-eight percent of small cell anaplastic carcinomas of the lung were shown to reveal either squamous or secretory cell differentiation.<sup>17</sup> In another large series of 2000 surgical cases, electron microscopy contributed significantly to the diagnosis in eight percent of the cases

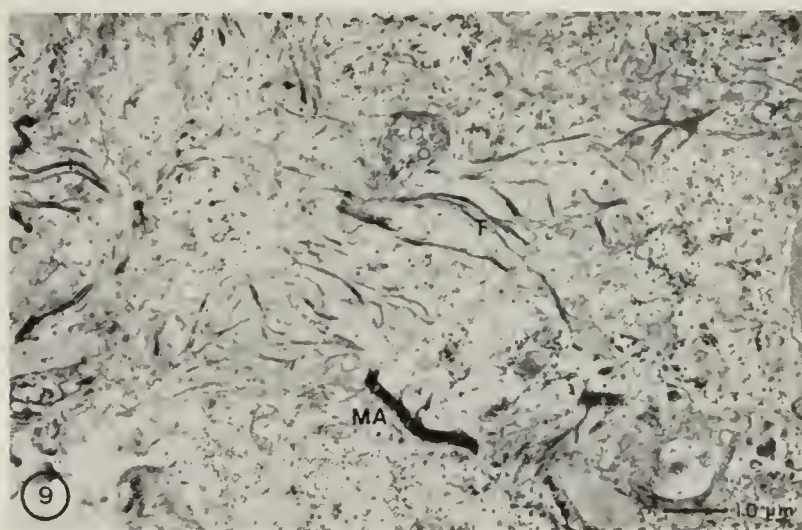


**Figure 9**

Electron micrograph of a poorly differentiated lung tumor obtained from an adult female. The presence of numerous cell junctions of the macula adherens type (MA) and many tonofilaments (T) coursing through the cytoplasm and attached to macula adherens is diagnostic of a squamous cell carcinoma. (Uranyl acetate; lead citrate; original magnification, X 12,200)

and was the only means of diagnosis in three percent.<sup>18</sup>

There are several features related to cell attachments which may be particularly useful in diagnosis. The finding of macula adherens or junctional complexes points to an epithelial origin of the neoplastic cells. The presence of zonula adherens is less specific in that zonula adherens-like junctions can be found between mesenchymal cells as well as in carcinomas. The presence of zonula adherens-like junctions is, however, useful in ruling out a lymphoreticular neoplasm. A histiocytic lymphoma can occasionally be confused with a poorly differentiated carcinoma at the light microscopic level but lymphomas are consistently seen to lack cell junctions when examined under the electron microscope.

The finding of tonofilaments and macula adherens points to squamous cell differentiation (Figure 9) whereas surface microvilli, microlumina, and secretory vacuoles may be seen in poorly differentiated adenocarcinomas. Melanomas may present as non-pigmented poorly differentiated neoplasms. In this case it is possible to correctly diagnose an amelanotic melanoma by finding premelanosomes or melanosomes at the ultrastructural level. The finding of small (150 to 400 nm) membrane-bound dense granules points to neurosecretory type tissue. Recently the concept that neuroectoderm derived cells populate the foregut, midgut, and hindgut has evolved into a unifying concept of the origin of a large number of benign and malignant neoplasms of lung, mediastinum, gut, pancreas, adrenal gland and related soft tissues. Ultrastructurally, all of these tumors contain evidence of neurosecretory type granules and are collectively called APUDomas. The finding of these characteristic granules has contributed significantly, in our laboratory, to the diagnosis of metastatic neuroblastomas in children, and carcinoids,



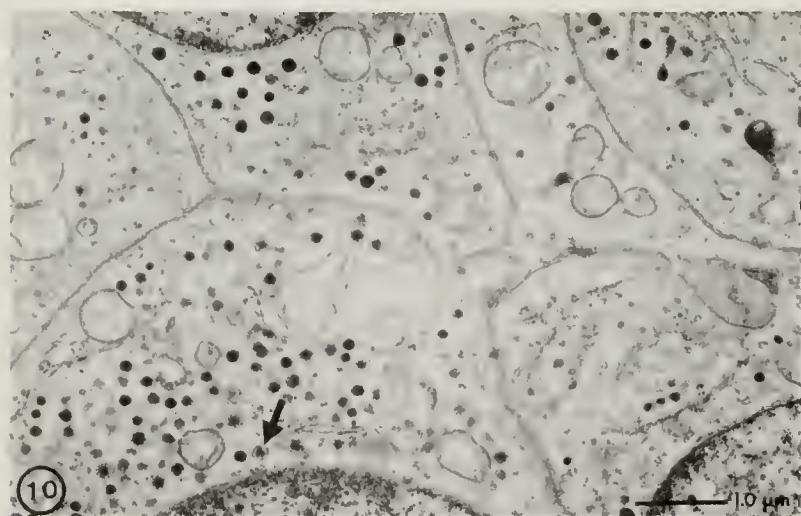


Figure 10

Electron micrograph of a poorly differentiated primary lung tumor obtained from an adult female. The presence of numerous neurosecretory-type granules (arrow) identified by the presence of an electron-dense core surrounded by a halo and membrane is diagnostic of an APUDoma and in this specific case, of a bronchial carcinoid. (Uranyl acetate; lead citrate; original magnification, X 17,400)

(Figure 10), islet cell neoplasms, pheochromocytomas, and oat cell carcinomas of the lung in adults.

The finding of large lakes of glycogen has proved useful in the diagnosis of Ewing's sarcoma and metastatic renal cell carcinoma. Occasionally, the presence of primitive sarcomeres composed of actin and myosin filaments has confirmed the diagnosis of rhabdomyosarcoma. The presence of a basal lamina, caveolae and dense bodies is useful in the diagnosis of a leiomyosarcoma. Finally, the arrangement of cells and the degree of interdigitation is often very useful in the diagnosis of neural or neural sheath neoplasms.

#### Acknowledgements

The authors wish to thank Dr. Jack Layton, Head, Department of Pathology, for his encouragement and constant support and Mrs. Virginia Borduin for her invaluable assistance.

#### References

- Holmes IH: Viral gastroenteritis. *Prog Med Virol* 25:1-36, 1979.
- Yunis EJ, Hashida Y, Haas JE: The role of electron microscopy in the identification of viruses in human disease. *Pathol Ann (pt 1)* 12:311-330, 1977.
- Hsiung GD, Fong CKY, August MJ: The use of electron microscopy for diagnosis of virus infections: an overview. *Prog Med Virol* 25:133-159, 1979.
- Costerton JW: The role of electron microscopy in the elucidation of bacterial structure and function. *Ann Rev Microbiol* 33:459-79, 1979.
- Tarnowski WM, Hashimoto K: Langerhans' cell granules in histiocytosis X. The epidermal Langerhans' cell as a macrophage. *Arch Derm* 96:298-304, 1967.
- Maldonado JE: Giant platelet granules in refractory anemia (preleukemia) and myelomonocytic leukemia: a cell marker? *Blood Cells* 1:129-135, 1975.
- Weiss HJ, Ames RP: Ultrastructural findings in storage pool disease and aspirin-like defects of platelets. *Amer J Path* 71:447-466, 1973.
- Ghadially FN, Lalonde JMA, Mukherjee TM: Electron probe x-ray analysis of intramitochondrial iron deposits in sideroblastic anaemia. *J Submicr Cyto* 11:503-510, 1979.
- Fisher ER, Danowski TS: Electronmicroscopy in the study of disorders of skeletal muscle. *Path Ann* 9:345-384, 1974.
- Payne CM, Curless RG: Fingerprint inclusions. Ultrastructural demonstration of muscle fiber type specificity. *J Neurol Sci* 31:379-386, 1977.
- Shy GM, Engel WK, Somer JE, Wanko T: Nemaline myopathy. A new congenital myopathy. *Brain* 86:793-810, 1963.
- Baudhuin P, Hers HG, Loeb H: An electron microscopic and biochemical study of type II glycogenosis. *Lab Invest* 13:1139-1152, 1964.
- Haas JE, Yunis EJ: Tubular inclusions of systemic lupus erythematosus. *Exp Mol Pathol* 12:257-263, 1970.
- Churg J, Sherman RL: Pathologic characteristics of hereditary nephritis. *Arch Path* 95:374-379, 1973.
- Hoyer JR, Michael AF, Vernier RL: Renal disease in nail-patella syndrome. *Kid Internat* 2:231-238, 1972.
- Habib R, Kleinknecht C, Gubler MC, Levy M: Idiopathic membranoproliferative glomerulonephritis in children. *Clin Nephrol* 1:194-214, 1973.
- MacKay B, Silva EE: Diagnostic electron microscopy in oncology. *Path Ann* 15:241-270, 1980.
- Gyorkey F, Kyung-Whan M, Istvan K, Gyorkey P: The usefulness of electron microscopy in the diagnosis of human tumors. *Human Path* 6:421-441, 1975.



# Muscle Biopsy:

## Recent Advances in Diagnostic Techniques

Janet A. Johnson, M.D.  
William J. Casey, M.D.  
Lawrence Z. Stern, M.D.

### Abstract

Muscle biopsy is important in the investigation of neuromuscular diseases. To obtain optimal information, the clinician, surgeon, and histochemist must each follow careful procedures. These roles are described. Advances in the handling, fixation, and histochemical examination of muscle tissue are outlined.

**Key Words:** Muscle biopsy, Histochemistry, Neuromuscular diseases.

The histologic examination of muscle biopsies is important for both the clinical and research investigation of neuromuscular diseases. Frequently, however, much less information is obtained than is possible because the procedures are performed in a suboptimal manner.

First, and perhaps most critical, the patient and the specific muscle to be biopsied must be chosen carefully. The patient should have clinical or laboratory evidence of neuromuscular disease, or of a myopathy associated with such systemic disorders as sarcoidosis or collagen vascular disease. The muscle to be biopsied should be one which is clinically involved, but not so weak that it is likely at an end stage of the disease process, since primary myopathic and neurogenic disorders are frequently difficult to distinguish morphologically in their terminal stages. A muscle whose normal fiber type

distribution and size have been extensively studied previously is desirable. Furthermore, muscles vary in the amount of discomfort experienced by the patient after biopsy, making several, such as vastus lateralis and biceps, preferable to muscles such as the gastrocnemius and deltoid.

Once the muscle is chosen, an open biopsy can usually be performed under local anesthesia, with the removal of a specimen approximately 1 cm in length and the diameter of a pencil. Care must be taken not to infiltrate the muscle itself with anesthetic, or else artifact will likely be introduced. In addition, the biopsied muscle should not have been needled recently by electromyography or injection because this also causes pathologic changes. In general, this procedure is very well-tolerated by adults and children alike except for infants who usually require at least some sedation. General anesthesia is to be avoided whenever possible. The specimen should be quickly taken to the laboratory where it can be cut into the appropriate pieces and rapidly frozen. If more than 30 minutes elapse before the tissue is either placed in fixative or is frozen, autolysis becomes significant.

The technique of fast-freezing (or quenching) is preferable to formalin fixation for muscle biopsy because it markedly decreases fixation artifact.<sup>1</sup> Some reasons for this are that rapid freezing immediately stops autolysis, it prevents loss of soluble substances (e.g., proteins and polysaccharides in aqueous fixatives and lipids in fat-solvent fixatives), and it prevents destruction, alteration, or inactivation of muscle enzymes.

A sliver of muscle should be taken and placed in cold three percent phosphate-buffered glutaraldehyde for possible electron microscopic (EM) study. It is not necessary to so study all specimens, but if histochemical examination should reveal any unusual or atypical changes, EM may be very helpful. The remainder of the muscle specimen should be carefully trimmed of any damaged areas and then cut into approximately 3 x 3 x 5 mm pieces. The pieces should be mounted vertically in tragacanth gum on blocks and immersed for seven to fourteen seconds in isopentane, cooled to -160°C in liquid nitrogen. Isopentane is used because it is a very conductive medium. Liquid nitrogen by itself causes an insulating region of bubbles around tissue which introduces freezing artifact. The blocks should then be immediately transferred to a cryostat cooled to -10°C to -25°C (depending on fat content) to prevent thawing. If the muscle fibers have been properly aligned longitudinally on the block, then transverse  $\mu$ 5 mm sections can readily be obtained. They become dehydrated when they are collected from the cryostat knife onto microscopic slides kept at room temperature. The slides are then ready for staining.

Histochemistry is the science of investigating tissue by applying chemical methods to recognize microscopic elements. Its use began in 1825 when a young French

From: University of Arizona Health Sciences Center, Departments of Neurology (Drs. Johnson and Stern) and Surgery (Dr. Casey), Tucson, Arizona 85724. This work was supported, in part, by a grant from the Muscular Dystrophy Association.



microscopist, F. V. Raspail, used iodine to recognize starch grains.<sup>2</sup> He also developed an aldehyde method for determining proteins in tissue which in a modified form, is still used today. Tissue fixation by fast-freezing was introduced in 1889. Enzymes were studied as early as 1891 and by the early 1950s, about twenty enzymes were identifiable by histochemical techniques. Now, over seventy reactions are available. With this rapid advancement of the field, histochemistry has come from being primarily a research tool to being considered essential in the evaluation of muscle biopsies.<sup>3</sup>

Specific colored enzyme reactions are used to identify the two major muscle fiber types. Standard nomenclature is based upon two enzyme systems;<sup>4</sup> the oxidative enzyme, NADH (nicotinamide-adenine dinucleotide) and the ATPase (adenosine triphosphatase). Type I fibers are rich in oxidative enzymes and poor in ATPase while Type II fibers are, for the most part, opposite. However, only the ATPase reaction has proven consistent enough, especially in diseased muscle, to be used reliably for human muscle fiber typing and is the one upon which we rely for this purpose.

NADH reflects the presence of various intermediate substrates of the Krebs' tricarboxylic acid cycle. NAD is normally one of the cofactors which carries electrons before the cascading reactions reach molecular oxygen. The histochemical technique employed is to use a tetrazolium salt to intercept the electrons and then reduce it to a deeply colored insoluble product. The precipitation of this compound will then be where the enzyme is located. Other oxidative enzymes, such as lactic dehydrogenase, can be localized to Type I fibers using analogous techniques.

A more complicated series of reactions is needed to demonstrate ATPase. Calcium and the substrate ATP are incubated with the tissue at pH 9.4. Where ATPase is present, it cleaves the phosphate and forms calcium phosphate. A cobalt salt is added, and the cobalt exchanges for calcium. The phosphate is then exchanged for sulphide by putting the tissue in ammonium sulphide. The end product is black, insoluble cobaltous sulphide at the site of the original ATPase activity.

Normally, muscle fiber types are distributed in a checkerboard fashion (Figure 1). In disease processes, either the distribution or the size of one type of fiber or both may be changed. Large clusters of one fiber type alternating with large clusters of the other is indicative of reinnervation. Groups of small fibers surrounded by relatively normal-sized fibers is characteristic of denervation (Figure 2). Fiber type predominance is defined as more than fifty-five percent Type I fibers or eighty percent Type II fibers. Type I fiber predominance is more common in myopathies while Type II fibers predominate in neuropathies.

The second important contribution histochemistry has made is in the recognition of certain specific enzyme deficiencies. Despite the fact that histochemistry is qualitative and not quantitative, it has aided in the

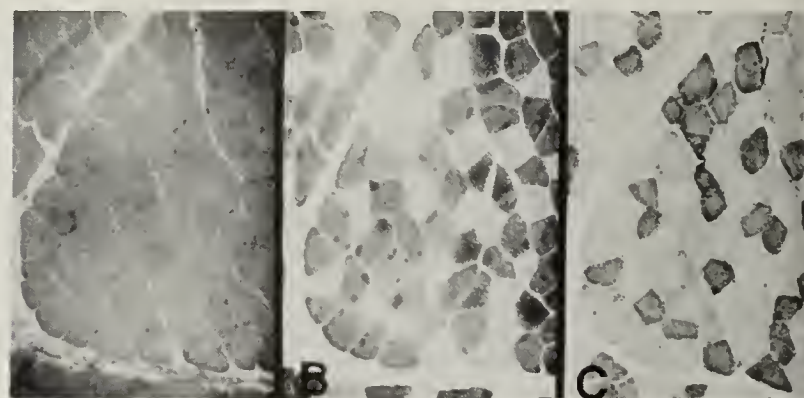


Figure 1  
Normal muscle. a. trichrome, b. ATPase, pH 9.4 c. NADH

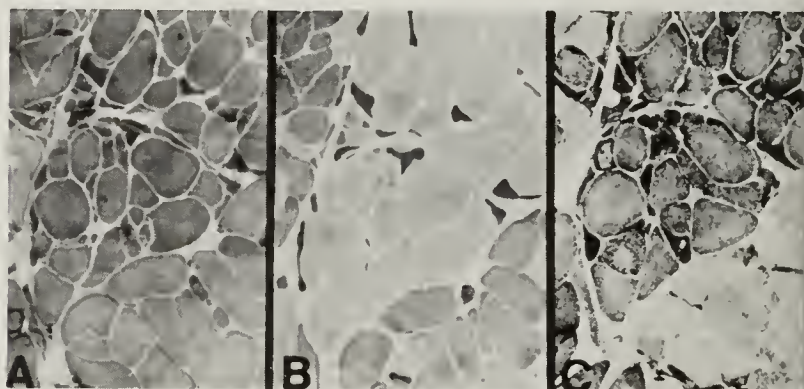


Figure 2  
Motor neuron disease (ALS). Fiber type grouping, a. trichrome, b. ATPase, pH 9.4 c. NADH

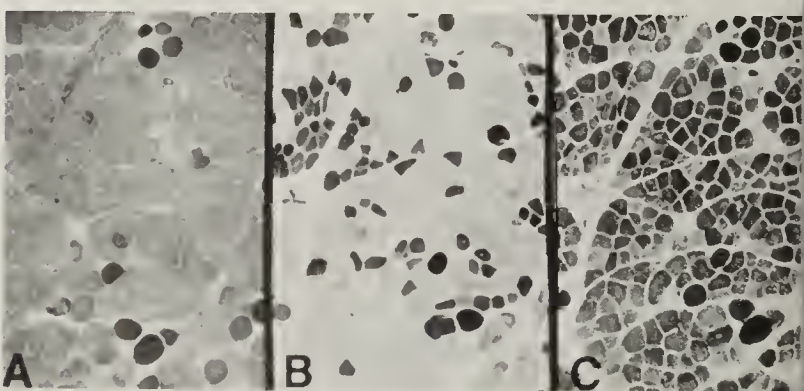


Figure 3  
Early Duchenne muscular dystrophy. Type I fiber predominance, a. trichrome, b. ATPase, pH 9.4 c. NADH

characterization of McArdle's disease (muscle phosphorylase deficiency) which is the first myopathy for which a specific enzyme deficiency has been identified.<sup>5</sup> Phosphorylase metabolizes glycogen by destruction of  $\alpha$ 1,4 glucosidic linkages. *In vitro*, the enzyme can reverse the reaction and form polysaccharide chains from glucose-1-phosphate. These chains are then stained with iodine, and the resultant degree of color is proportional to the length of chains produced (Figure 4).

Thirdly, histochemical techniques can demonstrate some changes in muscle fibers which actually appear normal by routine histologic stains. One example of this is central core disease (Figure 5). By H&E no abnormality is usually seen, but with the oxidative enzyme reactions,



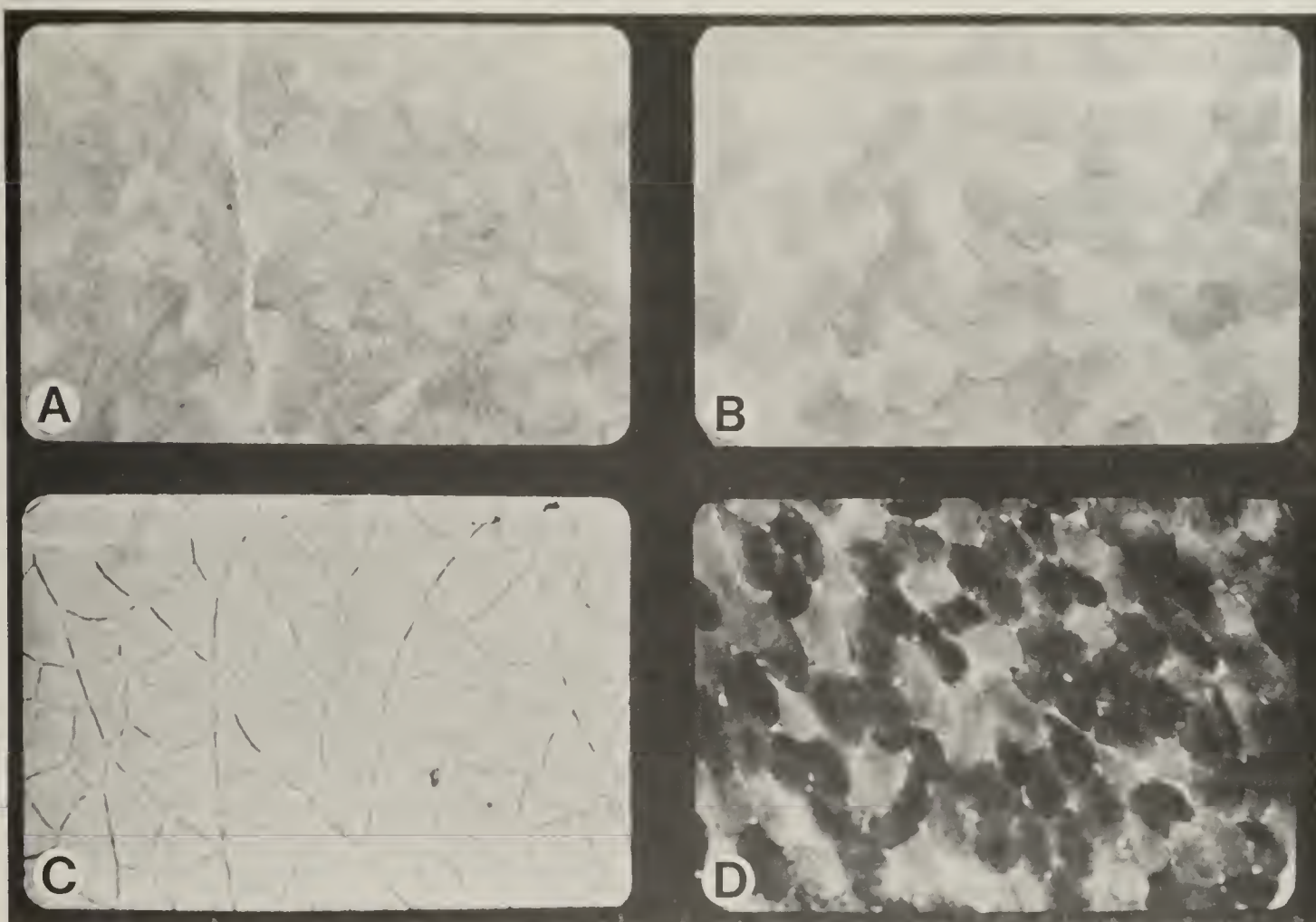


Figure 4 McArdle's disease. a. PAS, b. PAS control, c. phosphorylase, d. phosphorylase control

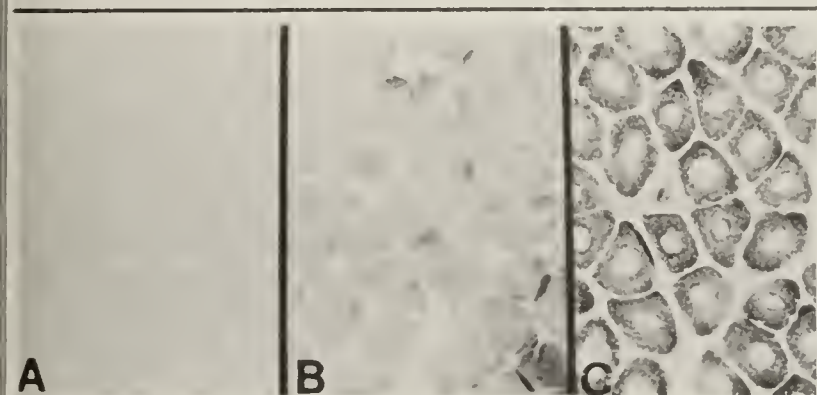


Figure 5

Central core disease. a. trichrome, b. ATPase, pH 9.4, c. NADH

many muscle fibers contain a central nonreactive area from which the disorder derives its name. Other architectural changes may be more indicative of a myopathic or a neurogenic disorder and, thus, when considered within the clinical setting, lead to the diagnosis. For example, target-like fibers are most commonly seen in biopsies from neurogenic disorders. "Moth-eaten" fibers, in which the intermyofibrillar network is no longer regular, but is whorled and contains nonreacting areas, is more common in myopathies than neuropathies (Figure 6).

In conclusion, muscle biopsy can be an invaluable diagnostic procedure in clinical medicine when the

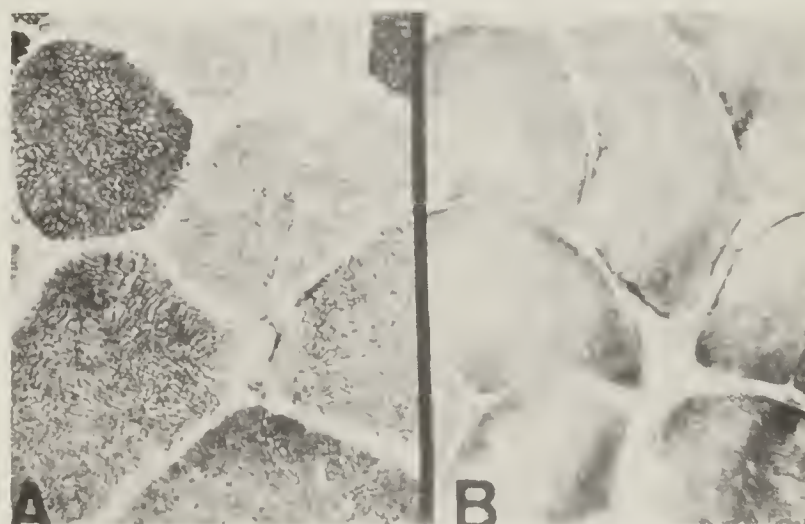


Figure 6

Myopathy. a. NADH normal, b. NADH moth-eaten fibers

appropriate muscle is selected for biopsy, the specimen is carefully but quickly processed using the proper methodology and modern histochemical techniques are employed.

#### References

1. Pease AGE: Histochemistry: Theoretical and Applied. Boston, Little, Brown & Company, 1968, p. 27.
2. Pease AGE: Review of modern methods in histochemistry. *J Clin Pathol* 4:1-36, 1951.
3. Engel WK: The essentiality of histo- and cytochemical studies of skeletal muscle in the investigation of neuromuscular disease. *Neurology (Minneapolis)* 12:778-794, 1968.
4. Dubowitz V, Brooke MH: Muscle Biopsy: A Modern Approach, London, Saunders, 1973, p. 21-26.
5. Ibid, p. 296.

# Guidelines for the Serodiagnosis of Acute Viral Hepatitis

Richard E. Sampliner, M.D.

Recent advances in serologic techniques now enable the clinician to identify the three currently recognized types of acute viral hepatitis. Unfortunately, these advances have led to frequent changes in terminology which may be confusing. However, such changes in terms reflect important developments in our knowledge of the types of viral hepatitis. An understanding of these terms will help to decipher results of serologic tests, which in turn will permit an insight into the clinical significance of the types of viral hepatitis. The purpose of this paper is to review the newer terminology and to explain the clinical significance of the serologic tests for acute viral hepatitis.

Table 1 lists the abbreviations for serologic tests that are now available for routine clinical laboratory use. The results of these tests performed on one sample of blood from a patient with acute viral hepatitis will permit definition of the type of viral hepatitis present (Table 2). Hepatitis A, formerly called infectious hepatitis, has a short incubation period, is spread by the fecal-oral route and affects predominantly younger people. Acute hepatitis A is diagnosed by the presence of anti-HAV of the IgM class in the serum.<sup>1</sup> This short-lived antibody develops with the onset of the clinical illness. IgG anti-HAV is a longer-lasting antibody that indicates past infection with hepatitis A virus and reflects ongoing immunity.

Hepatitis B, formerly called serum hepatitis, has a longer incubation period, is transmitted by both parenteral and intimate personal contact and primarily affects adults. Acute hepatitis B is diagnosed by the presence of the hepatitis B surface antigen (HBsAg) in the serum. Past terms for HBsAg include Australia antigen and hepatitis-associated antigen (HAA). HBsAg is present at the onset of symptoms in 92% of cases of hepatitis B and typically disappears with resolution of symptoms.<sup>2</sup> Three antigen-antibody systems are associated with hepatitis B — the surface, the core and the "e."<sup>3</sup> The surface antigen coats the complete hepatitis B virion — also known as the Dane particle. The core antigen (HBcAg) is in the center of the hepatitis

Table 1  
Hepatitis Serology Shorthand

| Hepatitis | Antigens      | Antibodies                       |
|-----------|---------------|----------------------------------|
| A         |               | Anti-HAV                         |
| B         | HBsAg         | Anti-HBs<br>Anti-HBc<br>Anti-HBe |
| NANB      | HBeAg<br>None | None                             |

Table 2  
Serodiagnosis of Acute Viral Hepatitis

| Type | Clinical Serodiagnosis                                 |
|------|--------------------------------------------------------|
| A    | IgM anti-HAV                                           |
| B    | HBsAg                                                  |
| NANB | Absence of:<br>IgM anti-HAV<br>HBsAg<br>anti-HBc alone |

Table 3  
Clinical Significance of  
Type of Viral Hepatitis

| Type | Severity | Chronic<br>Carrier State | Chronic<br>Liver Disease |
|------|----------|--------------------------|--------------------------|
| A    | +        | 0                        | 0                        |
| B    | +++      | +                        | +                        |
| NANB | ++       | +                        | +                        |

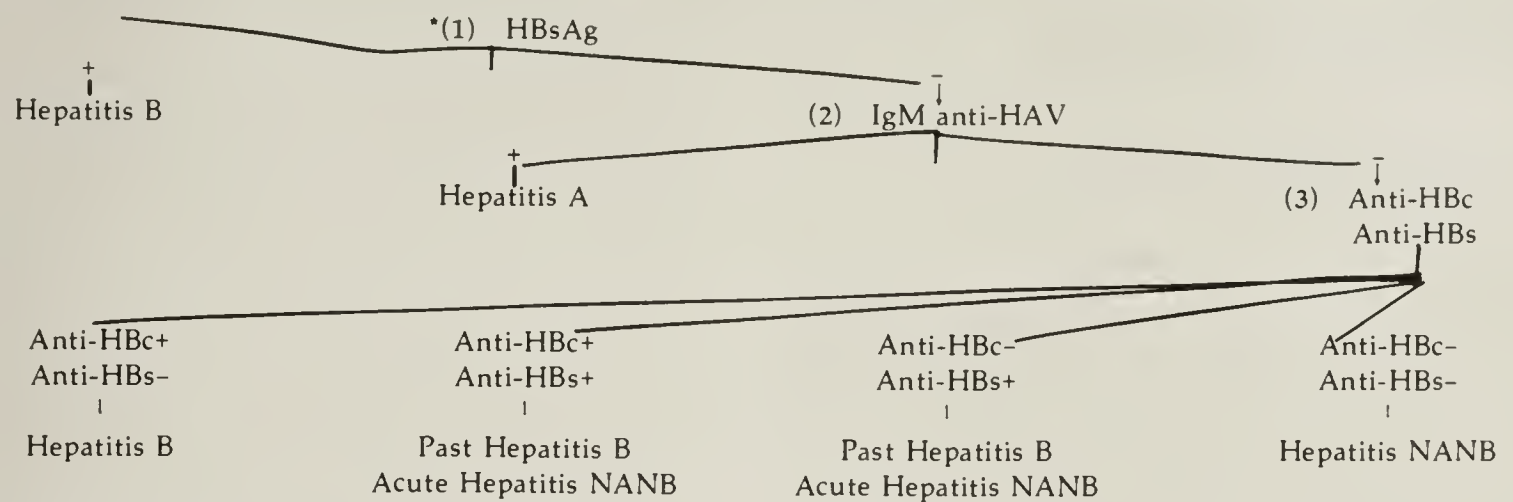
B virus and does not circulate freely in serum. The "e" antigen (HBeAg) is a cryptic component of the core of the virus and is detectable in the serum only in the presence of HBsAg. HBeAg circulates early in the course of acute hepatitis B and is an indicator of the risk of infectivity. The antibody to core antigen (anti-HBc) becomes detectable with the onset of the clinical illness and may persist for life. High titer anti-HBc reflects continuing viral replication in the host hepatocyte and when present alone can be the only marker of the hepatitis B virus.<sup>4</sup> The antibody to surface antigen (anti-HBs) appears weeks to months after the acute illness, persists for years and indicates immunity. The antibody to "e" antigen (anti-HBe) is detectable after HBeAg resolves and after anti-HBc appears.<sup>5</sup> Anti-HBe is associated with clinical resolution and a greatly reduced risk of infectivity.

By using the above serologic tests we can identify the most recently recognized type of viral hepatitis — non-A, non-B (NANB). Diagnosis of NANB requires the serologic exclusion of both hepatitis A and hepatitis B, as well as other causes of liver injury such as drugs, shock

From: Veterans Administration Medical Center, Tucson, Arizona where Dr. Sampliner is Chief, Gastroenterology Section and the University of Arizona Health Sciences Center, Tucson where Dr. Sampliner is Associate Professor of Medicine.



## Sequential Acute Viral Hepatitis Serology



\* Sequence of Serologic Tests

Figure 1

and sepsis. NANB hepatitis has an intermediate incubation period and seems to be similar epidemiologically to hepatitis B.<sup>6</sup> NANB is now the major cause of post-transfusion hepatitis. Currently there is no serologic marker for NANB, thus it remains a diagnosis of exclusion.

Some clinical laboratories perform a panel of hepatitis serologic tests so that all the results are obtained at once. If this is not available, you can follow the sequence in Figure 1 to define the type of viral hepatitis.

The ability to classify viral hepatitis is more than an intellectual exercise. Severity of disease, duration of infectivity, and outcome differ for the types of viral hepatitis (Table 3). Hepatitis A is the least severe illness, although rarely it can cause fulminant hepatitis.<sup>7</sup> It is transmissible for only two weeks after the onset of jaundice, is not associated with a chronic carrier state, and does not result in chronic liver disease.

In contrast, hepatitis B has the most severe clinical course, accounting for the majority of fulminant viral hepatitis. Ten percent of patients with a clinical bout of hepatitis B will become chronic carriers of HBsAg and will remain potential sources of B virus transmission.<sup>8</sup> The chronic carrier state lasts for years to a lifetime.<sup>9</sup> Chronic carriers of HBsAg are a problem in the medical setting as a source of occupational exposure for health workers. Additionally, chronic carrier health workers pose a potential risk to their patient contacts.<sup>10</sup> As well as being a risk to others, the chronic carrier is personally at risk to develop chronic liver disease and, in the long run, primary hepatocellular carcinoma.<sup>11</sup> Hepatitis B does progress to chronic liver disease. Virtually all patients who become chronic carriers after clinical hepatitis B will have a form of chronic hepatitis.<sup>8</sup> The spectrum of chronic liver disease due to hepatitis B ranges to chronic active hepatitis and cirrhosis.

NANB hepatitis is intermediate in severity between hepatitis A and hepatitis B. It accounts for approximately one-third of cases of fulminant viral hepatitis. Like hepatitis B, NANB hepatitis is associated

with a chronic carrier state that may last for years.<sup>12</sup> Such chronic carriers cause NANB post-transfusion hepatitis. Also like hepatitis B, NANB hepatitis can progress to chronic liver disease. Compared to hepatitis B, a larger percent of patients with NANB seem to have a chronic course, although the outcome of chronic NANB liver disease may be more benign than the outcome of B.<sup>13</sup> The natural history of chronic NANB liver disease is not yet fully defined.

In summary, there have been recent and important advances in the sero-diagnosis of viral hepatitis. Definition of the specific type of viral hepatitis is critical because of prognostic implications for severity of the acute illness and for complete resolution versus development of chronic liver disease.

### References

1. Feinstone SM, Purcell RH: New methods for the serodiagnosis of hepatitis A. *Gastroenterology* 78:1092-1093, 1980.
2. Hoofnagle JH, Seef LD, Bales ZB et al: Serologic responses in HB. In: *Viral Hepatitis*. Vyas GN, Cohen SN, Schmid R, (eds), Philadelphia, Franklin Insitutue Press, 1978, pp 219-242.
3. Barber LF, Gerety RJ, Tabor E: The immunology of the hepatitis viruses. *Adv Intern Med* 23:327-351, 1978.
4. Hoofnagle JH, Gerety RH, Ly N et al: Antibody to hepatitis B core antigen. *New Engl J Med* 290:1336-1340, 1974.
5. Aikawa T, Sairenji H, Furuta S et al: Seroconversion from hepatitis Be antigen to anti-HBe in acute hepatitis B virus infection. *New Engl J Med* 298:439-441, 1978.
6. Alter MJ, Gerety RH, Sampliner RE et al: Community acquired non-A, non-B hepatitis. *Am J Epidemiol* 112:431-432, 1980.
7. Rakela J, Redeker AG, Edwards VM et al: Hepatitis A Virus infection in fulminant hepatitis and chronic active hepatitis. *Gastroenterology* 94:879-882, 1978.
8. Redeker AG: Viral hepatitis: clinical aspects. *Am J Med Sci* 270:9-16, 1975.
9. Sampliner RE, Hamilton FA, Iseri OA et al: The liver histology and frequency of clearance of the hepatitis B surface antigen in chronic carriers. *Am J Med Sci* 277:17-22, 1979.
10. Rimland D, Parkin WE, Miller GB et al: Hepatitis B outbreak traced to an oral surgeon. *N Engl J Med* 296:953-958, 1977.
11. Larouze B, Saimot G, Lustbader ED et al: Host responses to hepatitis B infection in patients with primary hepatic carcinoma and their families. *Lancet* 2:534-538, 1976.
12. Tabor E, Seef LB, Gerety RH: Chronic non-A, non-B hepatitis carrier state. *N Engl J Med* 303:139-143, 1980.
13. Koretz RI, Stone O, Gitnick GL et al: The long term course of non-A non-B post-transfusion hepatitis. *Gastroenterology* 79:893-898, 1980.

# Needle Aspiration Biopsy of Thyroid Nodules

Lawrence W. Norton, M.D.  
Stephen L. Wangenstein, M.D.

## Abstract

A preliminary experience with fine needle aspiration biopsy of thyroid nodules in 66 patients confirms the ease and safety of the procedure. Among 13 patients proven by operation to have carcinoma or adenoma, 11 (85%) were found to have abnormal cytology. The incidence of neoplasia in excised thyroid nodules which had been biopsied by needle aspiration was 81%. No falsely positive diagnoses were made. Falsely negative diagnoses occurred in 19% of 16 operated patients. No complications were noted following aspiration biopsy. Fine needle aspiration biopsy appears to be an accurate first step in the evaluation of thyroid nodules.

Selecting patients with thyroid nodules for operation remains a clinical challenge. Despite preoperative evaluation by clinical assessment, response to thyroid suppression, thyroid scan and ultrasonography, the incidence of carcinoma or adenoma in surgically removed thyroid nodules is only 10%-35%.<sup>1</sup>

As a means of decreasing the number of unnecessary thyroid operations, needle biopsy of thyroid nodules was introduced. Early experience with coarse needle techniques suggested that thyroid operations could be decreased by 90%.<sup>2</sup> Fine needle aspiration biopsy with cytologic examination of aspirated cells was utilized first in Scandinavia as an alternative to coarse needle techniques in order to avoid morbidity.<sup>3</sup> The impact of fine needle biopsy in surgery for thyroid nodules is being evaluated currently.

Attractions of the fine needle aspiration technique are its ease of performance and virtual absence of complications. In order to determine the accuracy of the technique in an initial experience, patients with thyroid nodules underwent aspiration biopsy in addition to routine evaluations such as thyroid scan and ultrasonography. Cytologic diagnoses were compared to tissue diagnoses in those patients operated upon for thyroid nodules.

## Materials

From July 1979, through December 1980, fine needle aspiration biopsy of thyroid nodules was performed in 66 patients at the University of Arizona Health Sciences Center. Fifty-seven patients (86%) were female. Ages ranged from 18 to 82 years with a mean age of 52 years.

A solitary mass was present in 63 patients. The other three had bilateral thyroid nodules. Distribution of nodules was approximately equal between right and left

lobes. Size at the time of initial examination averaged 2.9 cm in diameter with a range of 0.5 cm to 6.0 cm. Among 57 patients who recalled the date of appearance, duration of nodules averaged 13 months.

Seventy-five needle aspirations were performed in 66 patients. Six patients had repeat aspiration of single nodules because of unsatisfactory results after the first attempt. In three patients with bilateral nodules, each nodule was biopsied separately. In all cases, aspiration was performed with the patient supine and the neck extended. A skin wheal was raised over the nodule by injecting one percent lidocaine. Through the wheal a No. 25 gauge, 1.5 cm needle attached to a 1.0 mm tuberculin syringe was advanced. The needle was directed on successive punctures into each quadrant of the mass. After each insertion, the plunger of the syringe was withdrawn partially to create suction as the needle was withdrawn. Aspirate, appearing as blood or white tissue debris, was smeared on glass slides (18 patients) or mixed with 50% alcohol (48 patients). Initially, slides were stained by the Papanicolaou technique for cytologic examination. This technique was replaced by mixing specimens with alcohol to eliminate erythrocytes. The alcohol mixture was then cytocentrifuged to produce a sediment on a slide. The sediment was stained by the Papanicolaou technique and examined.

Cytologic diagnoses were categorized as 1) unsatisfactory, 2) no abnormality detected (NAD), 3) atypical, 4) suspicious for malignancy, 5) malignancy or 6) inflammation depending upon cell characteristics.

Thyroid function tests were performed in all 66 patients. Only nine showed abnormalities most of which were minor variations from normal. Thyroid scans using Technetium 99 M (pertechnetate) were interpreted as showing non-functioning nodules in 31 of 58 patients studied. Ultrasonography of nodules in 19 patients diagnosed solid masses in 12, cysts in 6 and a mixed lesion in one patient.

## Results

No complications occurred after 75 fine needle aspiration biopsies of thyroid nodules.

**Unsatisfactory.** No thyroid cells were identified in aspirates from six nodules for a technical failure rate of eight percent. All failures occurred early in the series. Biopsy was repeated successfully in each instance.

**No Abnormality Detected.** Forty-two aspirates from 37 patients contained thyroid cells which appeared normal on cytologic examination. Fifteen of the 42 aspirations yielded fluid in addition to cells. Three patients with non-cystic nodules underwent lobectomy on the basis of clinical appraisal and lack of thyroid suppression. Follicular adenoma was found in two and colloid nodule in one.

Of the remaining 34 patients, 20 were followed for two months or longer. Ten received thyroid suppressive drugs with regression of nodule size in half. Among ten nonsuppressed patients, thyroid size decreased in four.

From: University of Arizona Health Sciences Center, Department of Surgery, Tucson, Arizona 85724.



**Atypical.** Ten aspirates contained atypical thyroid cells. Fluid was obtained during two of the biopsies. Four patients were operated upon with findings of follicular adenoma in three and papillary carcinoma in one. Three of the other six patients with atypical cells were followed with thyroid suppression for two months or longer. Nodule size decreased in one but was unchanged in two, one of which had clinical evidence of Hashimoto's thyroiditis.

**Suspicious for Malignancy.** Eleven aspirates showed cells which were suspicious for malignancy. One nodule was cystic. Operation was recommended to all eleven patients but refused by four who have had no follow-up. Among seven operated patients, papillary carcinoma was found in two, follicular carcinoma in one, follicular adenoma in two and nodular hyperplasia in two. Suppressive therapy was not given to these patients preoperatively.

**Malignancy.** Aspirated cells appeared malignant in two patients. Each was operated upon without thyroid suppression. One patient had papillary carcinoma. The other had metastatic adenocarcinoma in the thyroid.

**Inflammation.** Aspiration of nodules in four patients showed inflammatory cells. In one patient, followed over two months, clinical and laboratory data suggested acute thyroiditis. In another patient, an abscess adjacent to the thyroid was drained operatively. The remaining two patients were lost to follow-up without a clinical diagnosis.

Of 13 patients found by operation to have adenoma or carcinoma of the thyroid, 11 (85%) had fine needle aspiration diagnoses of atypical cells, suspicious for malignancy or malignancy. No aspiration yielded falsely positive results. Among a total of 16 operated patients, aspiration biopsy was falsely negative (NAD) in three (19%). The incidence of neoplasia (carcinoma or adenoma) in excised thyroid nodules which had been biopsied by needle aspiration was 81%.

A correlation of outcome with results of needle aspiration biopsy among nonoperated patients could not be made. No patient followed after biopsy showed progression of disease suggesting carcinoma.

## Discussion

Our preliminary experience with fine needle aspiration biopsy of thyroid nodules confirms that the procedure is technically easy and remarkably safe. Technical failures occurred only during the early development of the protocol. As experience increased, aspiration yielded thyroid cells routinely. Cost and equipment are minimal compared to imaging procedures such as thyroid scanning and ultrasonography.

Essential to the success of needle aspiration biopsy is a pathologist experienced in cytologic interpretation. Differentiation between neoplastic and inflammatory cells may be difficult. Distinguishing Hashimoto's thyroiditis and lymphoma cytologically may not be possible.

The accuracy and reliability of fine needle aspiration

biopsy remain open to question. While our diagnostic accuracy of 85% in detecting thyroid neoplasia seems commendable, it is based on a relatively few patients whose diagnosis was confirmed by operation. Similarly, the incidence of neoplasia in resected nodules (81%) was determined from experience in only 16 patients.

More comprehensive experience, however, appears to support the efficacy of fine needle biopsy. Colacchio et al<sup>1</sup> performed aspiration biopsy in 300 patients. Diagnoses were correlated with coarse needle tissue specimens or with operative specimens in 225. Cystic lesions were detected by aspirating fluid in 18% of patients. Of 23 carcinomas, 19 (83%) were diagnosed by fine needle biopsy. A falsely positive diagnosis of carcinoma was made in four of 300 patients (1%). As a result of fine needle aspiration biopsy, the incidence of neoplasm in resected thyroid nodules was increased from a previous 10%-35% to 68%.

The frequency of carcinoma in patients selected for operation was increased from 36% to approximately 85% by needle biopsy in a group of patients reported by Block et al.<sup>4</sup> The improved selectivity for operation did not, however, reduce the total number of patients undergoing operation. This was explained by the fact that some thyroid nodules which previously would not have been removed were recognized as requiring operation.

The success of fine needle aspiration biopsy in detecting thyroid cancer may depend not only upon the accuracy of cytologic examination but upon the frequency of needle punctures. Block et al.<sup>4</sup> stresses that several aspirates should be obtained, some from the target itself and some from its immediate neighborhood. Using this approach, it is unlikely that a cancer will escape detection.

While no morbidity occurred in our patients, a variety of complications may follow fine needle aspiration infrequently. These include persistent draining sinus, ecchymoses and pneumothorax. No seeding of a fine needle tract by carcinoma has been reported although such seeding is a rare complication of coarse needle biopsy.

Because of its ease, safety and accuracy, fine needle aspiration appears to be a reasonable first step in the evaluation of solitary thyroid nodules. Currently, results of aspiration biopsy should be interpreted in relation to other clinical and diagnostic criteria of malignancy. If the technique becomes established as the most reliable means of detecting thyroid neoplasm, it would reduce considerably the time required to decide on surgical or medical treatment of thyroid nodules.

## References

1. Colacchio TA, LoFerfo P, Feind CR: Fine needle cytologic diagnosis of thyroid nodules. *Am J Surg* 140:568-71, 1980.
2. Crile G, Hawk WA: Aspiration biopsy of thyroid nodules. *Surg Gynecol Obstet* 136:241-5, 1973.
3. Soderstrom N: Aspiration biopsy of goiters for cytologic diagnosis. *Acta Med Scand* 144:237, 1952.
4. Block MA, Miller JM, Kini SR: The potential impact of needle biopsy on surgery for thyroid nodules. *World J Surg* 4:737-45, 1980.



ARMA

**President**

**John T. Clymer, M.D.**

**President-Elect**

**Clyde W. Kurtz, M.D.**

**Vice President**

**John E. Oakley, M.D.**

**Secretary**

**Earl J. Baker, M.D.**

**Treasurer**

**Neopito L. Robles, M.D.**

**Executive Director**

**Bruce E. Robinson**

**Publishing Committee**

**Marshall B. Block, M.D., Chairman**

**Burnell R. Brown, M.D.**

**C. Herbert Fredell, M.D.**

**Benjamin K. Harris, M.D.**

**Jonathan M. Levy, M.D.**

**William B. McGrath, M.D.**



*Editorials*

## **Holistic Medicine: Is it all Good?**

Holistic medicine by definition implies caring for the total individual; looking beyond his physical ailments to his emotional and social needs. What can be wrong with such an approach?

Although as physicians we have been trained to focus on disease, once in practice it becomes apparent that disease does not occur in a vacuum but in the presence of the patient's other emotional and social circumstances. It is these latter factors which make caring for patients so difficult. The interaction of these three spheres can result in prolonged and anxiety-producing situations difficult to resolve. A recent case in point was that of a young woman who presented with acute epigastric distress which was thought to be duodenitis or perhaps early ulcer disease. Standard therapy was prescribed, but she did not improve. Additional, careful, prodding revealed that the patient had been under a great deal of stress trying to complete a graduate degree while her marriage was failing and her child was regressing under the strain. It looked like a classic case of emotionally-induced gastrointestinal disease in a young woman. However, with time jaundice appeared which led to the correct diagnosis of obstructing cholelithiasis. Early concern for emotional and psychological factors in this young woman led the physicians caring for her to overlook some of the more significant physical components so that her true diagnosis was delayed. The point to be made, is that there are many factors which interdigitate in caring for patients which can complicate and obscure physical as well as emotional factors of the disease process. Holistic medicine is dedicated to this total "look" at the patient. It is to be lauded for this approach, for if it is practiced successfully, leads to the best care medicine has to offer. There is no doubt

that at times we lose sight of some of these variables and we should always be on guard to avoid it. The increased technology which we are all utilizing to diagnose illness makes the patient almost insignificant at times compared to the results of tests and procedures.

Against this backdrop are the patients who truly do have primarily emotional problems who are seeking help for symptoms which appear to be physical in nature. These patients perhaps cannot perceive or are resistant to the suggestion that their problems are primarily emotional. Under the guise of holistic medicine, some practitioners have been utilizing unscientific approaches to help patients with these problems. Hair analysis, and other bizarre diagnostic procedures are being used which result in therapies consisting of megavitamin treatment, mineral supplementation, bizarre dietary programs and colonic therapy to treat primarily emotional problems. Patients are thus not being adequately treated for their underlying problems, but even worse, patients are on occasion being made physically ill by some of these therapies, i.e., toxic doses of vitamins.

Holistic medicine has focused attention on a most important aspect of medical care, that is caring for the total patient in the context of their psychological and social environment. However, it has also led to therapies which are less than scientific and can lead to severe problems, both emotional and physical. Unless a concerted education effort is undertaken by all of us in medicine, we'll have no one to blame but ourselves when public scrutiny exposes such treatment and further assaults ensue on our ability to monitor ourselves.

**Marshall B. Block, M.D.**  
Editor





## Where Should the Accent in Continuing Medical Education be Placed?

Upon asking fellow physicians what they are accomplishing in their continuing education activities, I get three categories of answers reminiscent of a well-known old parable:

"Three stone masons at work were asked what they were doing. The first said he was laying blocks of stone. The second indicated that he was earning a living. While the third stated that he was building a great cathedral."

One physician said he was getting category I C.M.E. credit hours. The second indicated that he was completing recertification requirements so he could continue to be competitive and prosper in his practice. The third physician stated that he was continuing his scholarly pursuit of an education that would better enable him to do independent thinking in problem solving. Such scholarship would then allow him to help enrich the lives of others.

Now, cathedrals get built irrespective of the motives of the stone masons. Even though we may see implication that the craftsmanship of the third worker might be somewhat superior, the moral of the parable lies, not in the quality of construction of the cathedral, but in the difference that the attitudes of the workers make in the quality of their own lives. The first mason merely exists during his working hours. The second has some advantage in that he at least anticipates some enjoyment of spending his earnings after the day's drudgery is done. The third mason has the richest life as he is enjoying his creation during the time the others are merely existing.

The construction of a great cathedral of fine medical care does not seem to be in question. Quality control is already insured by medical school graduation, specialty board certification and recertification, licensure and relicensure, the requirements of hospital staffs and other organizations as well as the laws of the land. If the structure is, therefore, inevitably going to be well built, perhaps our attention might now be better aimed toward molding the motives and attitudes of the workers by our continuing educational programs.

Too often the goal of continuing medical education seems aimed toward coercing hours of remedial instruction on

non-achievers rather than giving opportunity for scholarship. It might be better to aim at producing inquisitive and probing minds, whose contemplation and visions would then result in the excitement of discovery and the satisfaction of cultural and social accomplishment. Great scientific discoveries have not come from required credit hours.

If the present accent in continued medical education is suspect so then is the present method of evaluating its effectiveness. Albert Einstein expressed the opinion that helping a student develop the ability to do independent thinking and formulate his own solutions to problems might be far more beneficial in allowing him to adapt to changing knowledge and make progress than having him remember a greater number of facts. It is obvious that the volume of medical facts is beyond accumulation by one person. The memory of a single physician is no longer important. It is, instead, the ability to tap the vast store of knowledge of consultants in journals and in libraries, and appropriately use those facts in problem solving, that makes one truly educated and therefore able to give fine patient care. Yet we persist in examining an individual's narrow sector of core knowledge as a guide to his competence and as a guide to our own success as educators.

It would seem, therefore, that the best accent on continuing medical education for a university would be to encourage and stimulate physicians to be perpetual scholars and philosophers rather than teaching mere facts and figures. Our success then will be measured, not in terms of the scores on pre- and post-tests, but in terms of the satisfaction and feeling of accomplishment of physicians in their practices.

The attitude of a physician that he is "building a cathedral" rather than "laying blocks of stone" will not only enrich his life but may result in a better cathedral.

Robert M. Anderson, M.D.  
Associate Dean  
Director, Continuing Medical Education

Editor  
Marshall B. Block, M.D.

Associate Editors  
Kenneth Desser, M.D.  
C. Herbert Fredell, M.D.  
Warren Gorman, M.D.

Editorial Board  
Thomas E. Blittker, M.D.  
John R. Green, M.D.  
John W. Kennedy, M.D.  
William B. McGrath, M.D.  
Arthur R. Nelson, M.D.  
Charles Nugent, M.D.  
Eric Prosnitz, M.D.  
Sydney Salmon, M.D.  
Lawrence Stern, M.D.

Managing Editor  
Bruce E. Robinson

Editorial Assistant  
Joan M. Bruner



Editor—

It is not necessary to inform most of the physicians about the newborn or maternal transport programs available to all patients who require this service in Arizona. The state funded Newborn Intensive Care Program has been transporting newborns to the four tertiary care nurseries in Phoenix and Tucson for over ten years. The more recent maternal transport program was developed and funded by the Arizona Perinatal Program. At the conclusion of the funding for the Program, the Arizona Department of Health Services (ADHS) began funding maternal transports through a federal Improved Pregnancy Outcome grant. Referrals to these programs are made through neonatologists or obstetricians who are under contract to the ADHS to handle consultation and referral calls regarding troublesome neonatal or maternal patients.

It has come to our attention that recently some requests for both neonatal and maternal transports have come directly to hospitals or the air ambulance service. Since transports must be authorized by one of the contract physicians on call for these programs, it is necessary to contact them first. Therefore, it would be helpful if you would publish the following telephone numbers as a reminder to physicians and others who may need to initiate a transport:

**Phoenix Newborn Transport -  
258-8331**

**Phoenix Maternal Transport -  
253-1860**

**Tucson Newborn Transport -  
626-6666**

**Tucson Maternal Transport -  
626-6666**

When the caller notifies the operator at one of the above numbers that they are requesting a neonatal or maternal transport, they will receive a call back within minutes from the neonatologist or obstetrician who can discuss the case and initiate a transport when appropriate. This procedure will expedite the process of transporting those patients who require tertiary center care.

Thank you for bringing this to the attention of your readers.

William K. Carlile, M.D.  
Medical Director  
Perinatal Health Section  
Bureau of Maternal and Child Health  
Tempe, Arizona 85281

Editor—

Perhaps you could arrange to publish the following under the title "Some Lawyers Advertise."

The continuing advertisement of one Van O'Steen in *Arizona Medicine* states that "a physician's license to practice medicine. . . can be permanently revoked by the Board of Medical Examiners based on the complaint of a single disgruntled patient." This appears to be a very misleading attempt by a lawyer to solicit business from presumably naive physicians.

The Supreme Court could permanently revoke a lawyer's license to practice law based on the complaint of a single disgruntled client. But clearly it would not take such imprudent and unjust action and neither will the Board of Medical Examiners.

"Disgruntled" means ill-humored or discontented. Both the Supreme Court and BoMEX require solid evidence of incompetence or lack of integrity on the part of the accused before any action would be taken against him. Ill humor or discontent on the part of the accuser would hardly be regarded as sufficient to deprive a person of his profession.

The democratic criteria of *Arizona Medicine's* editors in accepting the advertisement of "Van O'Steen and Partners" may be admirable. (See page 259 of the April issue). It is probable, however, that these lawyers grossly overestimate the gullibility of physicians.

It would be educational for these "Administrative Lawyers" to attend a few sessions of the Board of Medical Examiners and observe the quality of justice, wisdom and restraint involved in their deliberations.

William B. Helme, M.D.  
Vice Chairman  
Board of Medical Examiners

Reply—

Although advertising which is deceitful or false should be refused publication, that which is truthful cannot be so readily dealt with, even if the content or implication may offend members of our Association. The Editor hopes that our members will have the wisdom to interpret the "Ad" in question as an advertisement for clients which may be weighted in favor of the advertiser. MBB

## Erratum

Inadvertently a production error occurred in the Special Article, entitled "Socialism: From Doctor's Dream to Doctor's Dilemma", which omitted the references. The article appeared on page 278 - 280 of the April issue, Vol. 38, 1981.

## References

1. Shaw GB: The Doctor's Dilemma. Baltimore: Penguin Books; 1977.
2. Waitzkin H: A Marxist view of medical care. *Ann Intern Med* 89:264-278, 1978.
3. Franke K: Begrabene Illusionen: Erfolge und Scheinerfolge der Medizin (II). *Der Spiegel*. 25 August, 35:130-140, 1980.
4. Ackerknecht EH: Rudolf Virchow: Doctor, Statesman, Anthropologist. Madison: University of Wisconsin Press; 1953.
5. Smith H: The Russians. New York: Quadrangle; 1976.
6. Field MG: Doctor and Patient in Soviet Russia. Cambridge: Harvard University Press; 1957.
7. Mao Tse-tung: Quotations from Chairman Mao Tse-tung. 2d ed. Peking: Foreign Languages Press; 1967.
8. Navarro V: Health services in Cuba: An initial appraisal. *N Engl J Med* 287:954-959, 1972.
9. Navarro V: Health, health services, and health planning in Cuba. *International J Health Services*. 2:397-431, 1972.
10. Eyer J: Prosperity as a cause of death. *International J Health Services* 1977. 7:125-150.
11. Waitzkin H, Waterman B: The exploitation of illness in capitalist society. Indianapolis: Bobbs-Merrill, 1974.





The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

## LEGISLATIVE COMMITTEE

Meeting of the Legislative Committee of the Arizona Medical Association held February 21, 1981, at 810 West Bethany Home Road, Phoenix, convened at 1:16 p.m., Richard O. Flynn, M.D., Chairman, presiding.

### Legislative Review Indigent Health Care

Dr. Schamadan reviewed fourteen different pieces of legislation that have been introduced in the current legislature concerning Indigent Health Care. The legislation that currently receives the most favor is that which would provide counties with funds to assist them with their current finances due to the raising expense of Indigent Health Care costs, and a commission to study and make recommendation to the legislature during the next session. Considerable discussion ensued.

*It was moved and carried to actively study all legislation providing Indigent Health Care.*

During the discussion concerning Indigent Health Care, it was noted that the last position adopted by this Association was April 30, 1977, which resolved "That the Arizona Medical Association actively encourage our legislative bodies and state health department organizations to scrutinize Medicaid legislation in a manner which recognizes geographic needs and the adequacies or inadequacies of existing local systems of medical care."

*It was moved and carried to recommend to the Board of Directors that a committee be appointed to aid the legislature in developing a program for Health Care for the Indigent.*

### Health Manpower Licensure Legislation S.B. 1097 - Occupational Therapy

S.B. 1097 would provide for the licensure of Occupational Therapists and their assistants patterned principally after the Physical Therapy Act currently in law. Amendment is being proposed to incorporate Occupational Therapists with the Physical Therapy Act.

*It was moved and carried to offer general support to S.B. 1097 seeking an amendment which provide that physical*

*therapist and occupational therapist could treat only upon referral from a physician and providing an exemption for personnel working under the direction of a physician.*

### S.B. 1196 - Nurse Practitioner

S.B. 1196 provides for the registered nurse practitioner to perform duties recognized by the medical and nursing professions and which are authorized by the Board of Nursing in collaboration with the joint Board of Medical Examiners and Osteopathic Examiners. Further it provides for the prescription and dispensing of drugs by a nurse practitioner pursuant to rules and regulation after approval by the joint Boards and the Board of Pharmacy. It was noted that this legislation is consistent with the position paper of October 6, 1979.

*It was moved and carried to generally support S. B. 1196 as passed by the Senate Health, Welfare and Aging Committee, however, to seek amendment providing for the approval of the Rules and Regulations by the Joint Board of Medical Examiners rather than collaboration.*

### H.B. 2298 - Nurse Internship

H.B. 2298 would prescribe hospital internship as qualification for license as professional nurses totaling 2000 hours. It was noted that the Hospital Association is opposed to this legislation as there is a working relationship developing with the nursing profession.

*It was moved and carried to offer non support to H.B. 2298.*

### S.B. 1235 - Psychologist

S.B. 1235 provides for technical amendments to the Psychologist Practice Act. *Received for information only.*

### S.B. 1249 - Dentist

S.B. 1249 provides for reciprocal licensure of dentist introduced by request.

*It was moved and carried to offer non support to S.B. 1249.*

### S.B. 1300 & S.B. 1343 - Chiropractor; Scope of Practice

S.B. 1300 would prohibit chiropractors from collecting specimens for or request reports of laboratory findings or examinations. S.B. 1343 would also prohibit chiropractors from using laboratory services as well as mechanical, electrical and other devices other than x-ray. This legislation was introduced due to an attorney generals opinion of January 5, 1981, which provides that chiropractors may now request laboratory examinations, receive reports of laboratory findings and manipulate persons by non surgical procedures for the collection of specimens for laboratory examinations.

*It was moved and carried to generally support Senate Bills 1300 and 1343 providing for a modification in the chiropractic scope of practice.*

### H.B. 2304 and H.B. 2450 - Chiropractor

H.B. 2304 provides for graduate of "straight chiropractor schools" to be acceptable for licensure in Arizona. H.B. 2450 provides for reciprocity and specific areas of unprofessional conduct.

*It was moved and carried to take no action on H.B. 2304 and H.B. 2450.*

### H.B. 2310 - Podiatrists

H.B. 2310 would prescribe requirements that hospitals provide staff privileges for podiatrists.

*It was moved and carried to offer non support to H.B. 2310.*

### H.B. 2340 - Homopathy

H.B. 2340 was introduced to provide for technical amendments to the Homeopathic Practice Act enacted during the last legislative session. It would also provide certain conditions that physicians would be exempted from the act and provided for a section of observation of public health and insurance laws.

*It was moved and carried to seek repeal of Chapter 29, Title 32 providing for the Homeopathic Practice Act.*

### S.B. 1336 - Midwives

S.B. 1336 prescribes qualifications, examinations and licensure for lay midwives. It also provided for a Midwifery Advisory Board under the Department of Health Services. It was noted that two sections of the bill would be inappropriate. It would provide for reciprocity from another state without examination and a grandfather clause when a person has practiced continuously for five years in another jurisdiction upon oral and practical examination.

*It was moved and carried to generally support S.B. 1336 with amendment to strike the reciprocity and grandfather provisions.*

### H.B. 2212 - Zone Therapist

H.B. 2212 provides for licensing and regulation of zone therapist.

*It was moved and carried to actively non support H.B. 2212.*

### H.B. 2385 - Dispensing Opticians

H.B. 2385 provides amendments to the Dispensing Opticians Practice Act and removing the provisions of advertisement with respect to the services of physicians or optometrist, examination and treatment and the fact that a person actively in charge of an establishment must be licensed as an optician.

*It was moved and carried to activity non support H.B. 2385 concerning dispensing opticians.*

### S.B. 1367 - Hearing Air Dispensers



S.B. 1367 would provide for a Hearing Aid Dispenser Advisory and Examining Committee under the Department of Health Services. *Received For Information Only.*

#### **S.B. 1370 - Family Therapists**

S.B. 1370 provides for certificate of marital and family therapists by the State Board of Psychologist Examiners.

*It was moved and carried to actively study S.B. 1370 making certain that proper exemptions are provided for physicians.*

#### **S.B. 1165 and S.B. 1209 - Pharmacist Practice Act**

S.B. 1209 would provide for continuing education for pharmacists and S.B. 1165 would allow their Board of Pharmacy to place a civil penalty of no more than \$500.00 on a licensiate.

*It was moved and carried to take no action on S.B. 1165 and 1209.*

#### **S.B. 1236 - Drug I.D. and No Sampling**

The committee had determined to Generally Support the concept providing for code imprint identification on legend drug products during the previous meeting, however, it was noted that the legislation introduced also placed greater restrictions on the distribution on the sample prescription drugs. This legislation was provided by the Department of Public Safety. The committee was further advised that an amendment is being prepared which should provide for distribution of sampling drugs upon the written request of appropriate providers.

*It was moved and carried to offer General Support to S.B. 1236 providing for a code imprint for legend drugs and an amendment which would provide for distribution of samples upon written request.*

#### **S.B. 1278 - Doctor Unprofessional Conduct**

S.B. 1278 would amend the Medical Practice Act to provide that unprofessional conduct includes any conduct or practice contrary to recognized standards or ethics or might constitute a danger only if the Board has established it to be harmful or dangerous to the health of a patient. Also it would provide that the Board shall notify a physician being investigated as to the full content or source of information.

*It was moved and carried to offer non support to S.B. 1278.*

#### **S.B. 1144/H.B. 2220 - Child Protection Act**

This legislation provides conditions under which abortion could legally be performed, informed consent, and detailed reports of abortions. It further provides that no government funds could be spent on abortions and that no state funding to family planning

agencies which refers women for abortions. Also the word "person" would include the unborn for purposes of wrongful death suits.

*It was moved and carried to actively oppose S.B. 1144 and H.B. 2220.*

#### **S.B. 1098 and S.B. 1295**

##### **Medical Malpractice**

S.B. provides for the extension of the JUP Board in order to close claims or provide for re-insurance. S.B. 1295 provides for certain modifications to the Medical Liability Review Panels.

*It was moved and carried to refer S.B. 1098 and S.B. 1295 to the Ad Hoc Malpractice Insurance Crisis Committee.*

#### **H.B. 2299/S.B. 1301**

##### **Cripple Children's Services**

This legislation would remove the requirement that the Department of Health Services operate a Cripple Children's Hospital and allowing it to contract for the care and treatment of cripple children. Further it places the responsibility of education of in-patients within the Department of Health Services rather than the Department of Education. Concern was expressed that this legislation be more specific in permitting the department to contract for the services in that as currently written it could be contracted to several different facilities.

*It was moved and carried to generally support H.B. 2299 and S.B. 1301 providing that an amendment be adopted to restrict the medical care for children into one facility.*

##### **Emergency Medical Services**

#### **S.B. 1003 - Emergency Medical Services Consolidation**

S.B. 1003 transfers the division of emergency medical services from DPS to the Department of Health Services and generally consolidates all emergency medical services in the Department of Health Services. It was noted, however, that the emergency medical services council is no longer advisory to the Department of Health Services and is appointed by the Governor reducing the number of physicians involved.

*It was moved and carried to generally support S.B. 1003 consolidating Emergency Medical Services expressing concern that there be greater physician representation on the Emergency Medical Services Council.*

#### **S.B. 1146 - Emergency; Triage System**

S.B. 1146 would prescribe a triage system in hospitals referring patients who are not emergencies to other appropriate facilities. Considerable discussion ensued concerning this legislation which was introduced by Senator Usdane as a cost containment measure.

*It was moved and carried to offer active non support to S.B. 1146*

#### **S.B. 1126 - Local Health Boards**

S.B. 1126 removes the powers of the local health boards making them advisory to the county Boards of Supervisors. This legislation was introduced at the request of the Pima County Board of Supervisors.

*It was moved and carried to offer active non support to S.B. 1126.*

#### **H.B. 2350 - Removal of Corneal Tissue**

H.B. 2350 would provide for further conditions for removal of corneal tissue if an objection is unknown by the next of kin.

*It was moved and carried to provide active study to H.B. 2350.*

#### **S.B. 1237 - State Health Plan**

S.B. 1237 was introduced at the request of the Department of Health to "cleanup the comprehensive State Health Plan Acts."

*It was moved and carried to actively study S.B. 1237.*

#### **H.B. 2301 - Hospital Rate Review Repeal**

H.B. 2301 would repeal the authority for the Department of Health Services to review rates and charges of health care institutions. The Arizona Hospital Association advises that they oppose this measure.

*It was moved and carried to offer non support to H.B. 2301.*

#### **H.B. 2461 - Certificate of Need Exemption**

H.B. 2461 would provide exemption from certificate of need provisions for state agencies with correctional or retardation facilities. The Hospital Association informs the committee that they oppose this legislation.

*It was moved and carried to offer non support to H.B. 2461.*

#### **H.B. 2193 - Immunization**

H.B. 2193 is offered as an enforceable school immunization law.

*It was moved and carried to generally support the concept of mandatory immunization for Arizona School children.*

#### **H.B. 2417 - Doctor-Patient Privilege**

H.B. 2417 provides that the doctor-patient privilege does not apply in criminal actions and proceedings involving the doctor's treatment of certain wounds.

*It was moved and carried to actively study H.B. 2417.*

#### **H.B. 2161 - Ownership of Health Records**

H.B. 2161 provides that the patient is the legal owner of all health records.

*It was moved and carried to actively non support H.B. 2161*

#### **S.B. 1143 - Health Occupations Investigation and Hearing Board**



The purpose of S.B. 1143 is to create a central investigation and hearing agency to be used by health occupations including the Board of Medical Examiners. Generally it would allow the Board of Medical Examiners to examine and license, and a different agency to investigate and hear complaints.

*It was moved and carried to offer active non support to S.B. 1143.*

## ARTICLES OF INCORPORATION AND BYLAWS COMMITTEE

The meeting of the Articles of Incorporation and Bylaws Committee of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Wednesday, March 4, 1981, convened at 7:17 p.m., Charles E. Henderson, M.D., Chairman, presiding.

### Specialty Society Representation

#### House of Delegates Resolution

Resolution A-2-81 - Re: House of Delegates -Specialty Society Representation. *Received*

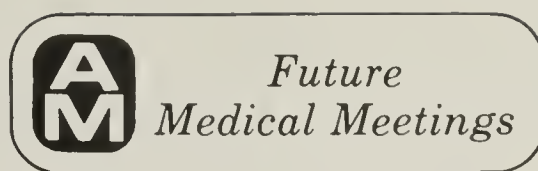
#### Summary of Requirements

A summary of requirements for representation by specialty societies in the ArMA House of Delegates which would come out of Resolution A-2-81 if adopted by the House of Delegates during its 1981 Annual Meeting were reviewed and discussed. The specialty society representatives posed questions on any concerns they had with specific items and, while committee members attempted to fully respond to such questions, it was determined that the most effective way to affect change or passage of the proposed resolution was in appearance and testimony at the reference committee hearings which would be conducted during the annual meeting following the close of the first session of the House of Delegates. Those present were informed that the reference committee meetings would be held at 2:00 p.m. on Wednesday, May 20, 1981, at the Convention Centre of The Pointe Resort.

*It was moved and carried that those specialty societies who were invited, but not represented at this meeting of the Articles of Incorporation and Bylaws Committee, be informed by written communication of the date and time for the Reference Committee meetings and of the extreme importance for all interested parties to appear and give testimony in order that the Reference Committee could be informed of and consider all available facts prior to reporting back to the House of Delegates on Resolution A-2-81 on Thursday, May 21, 1981.*

### Correspondence

Letter from Mark G. Kartub, M.D. dated 9/4/80. *Received.*



The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program, (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

## MAY

### Structural Family Therapy Series

#### Working with Single Parent Families

May 15-16, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Clinic & Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for 8 hours of category 1 credit.

### The Critically Ill Child

May 15-16, 1981. St. Joseph's Hospital & Medical Center, Phoenix, Arizona. Sponsor: St. Joseph's Hospital & Medical Center, Pediatric Educ. Dept. Contact: Pediatric Education Department, 350 W. Thomas Road, Phoenix, AZ 85001. Approved for 12.5 hours of category 1 credit.

## 90th Annual Meeting of the Arizona Medical Association

May 20-24, 1981. The Pointe Resort, Phoenix, Arizona. Sponsor: Arizona Medical Association. Contact: Mr. Bruce E. Robinson, Executive Director, 810 W. Bethany Home Rd., Phoenix, AZ 85013. Approved for 15 hours of category 1 credit.

### Advanced Cardiac Life Support (Provider)

May 22 & 23, 1981. The Pointe Resort (in conjunction with ArMA's Annual Meeting) Sponsors: ACLS, Az Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

### Microvascular Surgery

May 26, 1981. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

### Insulin Pump

May 27, 1981. Boswell Memorial Hospital, Sun City, Arizona. Sponsor: Boswell Memorial Hospital. Contact: Office of CME, Boswell Memorial Hospital, 10401 Thunderbird Blvd., P.O. Box 1690, Sun City, Arizona 85372. Approved for hour per hour category 1 credit.

### American College of Physicians, Interim Meeting

May 29-31, 1981. Little America, Flagstaff, Arizona. Sponsor: American College of Physicians. Contact: Alan Gordan, M.D., 2200 N. 3rd St., Phoenix, AZ 85005. Approved for hour per hour category 1 credit.

## JUNE

### Adverse Drug Reactions in the Elderly

June 2, 1981. Desert Samaritan Hospital, Mesa, Arizona. Sponsor & Contact: Desert Samaritan Hospital, 1400 S. Dobson Rd., Mesa, AZ 85202. Approved for hour per hour category 1 credit.

### Current Treatment of the Elderly Psychiatric Patient

June 4, 1981. Boswell Memorial Hospital, Sun City, Sponsor and Contact: Boswell Memorial Hospital, office of CME, 10401 Thunderbird Boulevard, Sun City, AZ 85374. Approved for hour per hour category 1 credit.

### Advanced Cardiac Life Support (Provider)

June 9, 10, & 11, 1981. Arizona Medical Association, Phoenix. Sponsor: ACEP, Arizona Affiliate - American Heart Assn., & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approve for hour per hour category 1 credit.

### Fifth Annual Southwestern Cardiovascular Symposium

June 11-13, 1981. Arizona Biltmore Resort, Phoenix, Arizona. Sponsor: St. Luke's Hospital and Medical Center. Contact: Chris Campbell, Seminar Coordinator, St. Luke's Hospital and Medical Center, 525 North 18th Street, Phoenix, AZ. Approved for 15 hours of category 1 credit.



**Structural Family Therapy Series  
Blended Family**

June 19-20, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Clinic and Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour of category 1 credit.

**4th Annual Summer Pediatric Conference**

June 19-21, 1981. Poco Diablo Resort, Sedona, Arizona. Sponsor: U of A College of Medicine and Arizona Pediatric Society. Contact: Office of CME & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 13 hours of category 1 credit.

**Advanced Cardiac Life Support  
(Recertification)**

June 26, & 27, 1981. Arizona Medical Association. Sponsors: ACET, Az Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

## JULY

**Advanced Cardiac Life Support  
(Provider)**

July 7, 8, 9, 1981. Arizona Medical Association, Phoenix. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

**Advanced Cardiac Life Support  
(Recertification)**

July 21, & 22, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

**Sexual Dysfunction in the Pulmonary Patient**

July 22, 1981. Boswell Memorial Hospital. Sponsor and Contact: Byran R. Updegraff, M.D., Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, AZ. Approved for hour per hour category 1 credit.

**Coconino County Medical Society  
17th Annual Summer Medical Seminar**

July 24 & 25. Little America, Flagstaff, Arizona. Sponsor: Arizona Medical Association. Contact: Lana L. Holstein, M.D., P.O. Box 392, Flagstaff, Arizona 86002. Approved for 14 hours of category 1 credit.

## AUGUST

**Current Treatment of Renal Disease in the Elderly Patient**

Sponsor & Contact: Walter O. Boswell Memorial Hospital - Office of CME, 10401 Thunderbird Boulevard, Sun City, AZ. Approved for hour per hour category 1 credit.

## 90th Annual Meeting ARIZONA MEDICAL ASSOCIATION

**The Pointe Resort, Phoenix, Arizona  
May 20-24, 1981 — Wednesday to Sunday**

- Outstanding Scientific Sessions
- Timely Socioeconomic Issues
- A two-day ACLS Provider Course
- Nine Specialty Society Presentations
- More than 50 Scientific & Commercial Exhibits
- Two exciting Social Events
- Arts and Crafts Exhibit

...and so MUCH MORE!

The scientific program meets the criteria for 15 hours of Category 1 credit for the ArMA Certificate and AMA Physician's Recognition Award. The program is also acceptable for 15 hours of prescribed credit by the AAFP.

**MAKE YOUR PLANS AND RESERVATIONS TODAY**

**Advanced Cardiac Life Support  
(Provider)**

August 11, 12, & 13, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

**Advanced Cardiac Life Support  
(Recertification)**

August 27 & 28, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

## MONTHLY OR WEEKLY

**Shrine Medics Meeting**

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

**Office Psychiatry for the  
Primary Provider**

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

**Counter Transference Group**

Weekly, Thurs. 8—10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

**Monthly Meeting of Tucson Radiologists**

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

**Pediatric Grand Rounds**

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

**Review of Forensic Pathology  
Current Case, Special Topics**

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.



# FIRST BIENNIAL SOUTH TEXAS CLINICAL DIABETES SYMPOSIUM

Hilton Palacio Del Rio, San Antonio, Texas  
November 6 - 7, 1981

## Sponsored by:

American Diabetes Association, Eli Lilly & Co., San Antonio Community Hospital, Ames Company, & The Upjohn Company.

## Objective:

To familiarize the primary care physician with current research and its clinical application.

## C.M.E. Credit:

American Diabetes Association (LCCME) 7.5 hours of Category 1. American Academy of Family Practice — This program has been reviewed and is acceptable for 8.0 personal interest (elective) hours by the American Academy of Family Practice.

## Cost:

\$75.00 (to be donated to American Diabetes Association)

### List of Topics

Etiology of Diabetes Mellitus  
Approach to Diabetic out of Control  
Home Glucose Monitoring and Insulin Pump  
Approach to Pediatric Diabetic  
Approach & Treatment of Diabetic Emergencies  
Care of Pregnant Diabetic

### Speakers

Dr. George Cahill  
Dr. Fred Whitehouse  
Dr. David Schade  
Dr. Luther Travis  
Dr. Daniel W. Foster  
Dr. Robert Huff

**Also covered:** *Diabetic Complications & Their Treatment • Education of the Diabetic & Family • Office & Hospital Diabetes Mellitus Education • Current Status of Oral Hypoglycemic Agents • Controversies in Diabetes Mellitus •*

**Chairman of Symposium:** Sherwyn L. Schwartz, M.D.

**FOR MORE INFORMATION AND REGISTRATION CONTACT:** Mrs. Rose E. Vassey, 8042 Wurzbach, Suite 420, San Antonio, TX. 78229, (512) 690-8612

## ARIZONA HEART INSTITUTE

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

### Clinical Conference Cardiovascular Medicine

Third Tues., 5:15 p.m., second floor classroom

## ARIZONA STATE HOSPITAL

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

### A.S.H. Psychiatric Grand Rounds

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm., Contact: Dr. Conger & Staff

### Clinical-Pathological Conference

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

### Medical Grand Rounds

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.

## BARROW NEUROLOGICAL INSTITUTE

### Medical Education

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### Neurology Teaching Conference

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf. Room.

### Neurosurgical Morbidity Conference

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### Neuro-ophthalmology Conference

Tuesdays, 7:30 a.m. in 8th floor neurology conference room.

### Spinal Injury Conference

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conf. Rm.—a multidisciplinary review of admission by neurosurgeons, orthopedists, and rehabilitation specialists

### Neuro-ophthalmology Conference.

Weekly, 7:30 a.m., 8th floor conference Rm.

### Neuropathology of Gross Specimens Conference

Thursday, 7:30-8:30 a.m. in the Morgue.

### Neurology-Neurosurgical

Fridays, 8-9 a.m., First Floor Conference Rm.

### Neuropathology or Neuroradiology Conferences

Friday, 9 a.m., Neuropathology in Neuropathology Conference Rm., Neuroradiology in First Floor Conference Rm.

### Neurorehabilitation Conference

Tuesdays, noon, 8th Floor Conference Rm.

### Neurosurgical Journal Club

Saturdays, 9-11 a.m. in Eighth Floor Conference Rm.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Thunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED.D., Director of Education.

### Medical Department Continuing Medical Education

4th Wednesday, 12 Noon, C119. May, July, Sept. & Nov.

### Tumor Board

Last Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept, & Nov.

### Surgical Department CME

4th Friday, 7 A.M., Educ. Center Classrooms I & II. Contact: Brian Updegraff, M.D.

## CAMELBACK HOSPITAL

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr., M.D.

### Clinical Conference

3rd Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

1400 South Dobson Road, Mesa, Arizona, Contact: L.A. Rosati, M.D. Approved for category 1 credit.

### CME Programs

Weekly Tuesday, 7 p.m., Cafeteria-West End.



**Clinical Conference - Dept. of Medicine**  
Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch, Grande Rm.

**OB/GYN Medical Staff Conference**  
Weekly, Monday, 12:30-1:30 p.m. Grande Rm.  
**Pediatric Case Conference**  
2nd. Friday, 12:30 p.m., Grande 2

## DOCTORS HOSPITAL

1747 East Thomas Road, Phoenix, Arizona  
86016 Contact: Medical Staff Secretary for additional information.

**Physicians Continuing Education Program**  
1st Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

1400 N. Wilmont Road, Tucson, AZ 85712.  
Contact: Eric G. Ramsay, M.D. Approved for category 1 credit.

**Family Practice Department Meeting**  
1st Monday, 12 Noon, Contact: R. Grossman, M.D.

## FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA

1215 N. Beaver Street, P.O. Box 1268, Flagstaff AZ 86002. Contact: B. C. Hirschberg, M.D., CME Program Clinical Conference. Approved for category 1 credit.

### Clinical Conferences

1st, 2nd & 4th, Tuesdays, 12:30 P.M., Tollefson Rm.

### Tumor Board Case Conference

3rd Tuesday, 12:30 P.M., Hospital Conf. Rm.

### Mortality & Morbidity Conference

1st Thursday, 12:30 P.M., Hospital Conf. Rm.

## GOOD SAMARITAN HOSPITAL

1033 East McDowell Rd., Phoenix, AZ  
Contact: W. J. Howard, M.D. Approved for category 1 credit.

### Anatomical Path. & Cytology

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf Rm.

### Gynecological Section Conference

2nd Monday, 12:30-1:30 p.m., West Rm

### Monday Noon Conference

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### Mortality/Morbidity, Surgery Comm.

2nd Monday, 11:30-2:00 p.m., West Rm.

### Obstetrical Section Conference

1st Monday, 12:30-1:30 p.m., West Rm.

### Pulmonary Disease Grand Rounds

Weekly, 12:00-1:00 p.m., D-5 North

### Family Practice Conference

Weekly Tuesday, 12:00-1:00 p.m., Fam. Practice Conf. Rm.

### Pediatric Grand Rounds

3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul Bergeson, M.D.

### PM & R Noon Inservice

2nd & 4th Tuesday, 12 Noon, R-2 Conference Rm.

### Surgical Grand Rounds

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### Clinical Cancer Forum

3rd Wednesday, 12:00-1:00 p.m., West Rm, Contact: John A. Bruner, M.D.

### Combined Cardiovascular & Family Practice Conf.

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5 North.

### Learning Disabilities

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

### OB/GYN Dept. Review & Statistics

Weekly, 12:30-3:00 p.m., OB/GYN Conf. Rm.

### Gynecological Pathology

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf. Rm.

### GI Radiology Conference

1st Thursday, 12:00-1:00 p.m., F151, Radiology Conf. Rm.

### Phoenix Ultrasound Soc. Meeting.

Medical Education Building, Contact: Dr. Ben Ora

### Neurology Grand Rounds

Weekly Thursday, 9:00-10:00 a.m., D-5 North.

### Tumor Treatment Planning Conf.

2nd & 4th Thursdays, 12:00-1:00 p.m., F151 Radiology

### Joint Tumor Gyn Conference

2nd Friday, 12:30-1:30 p.m., West Rm.

### Medical Grand Rounds

Weekly Friday, 8:00-9:00 a.m., West Rm.

### Neuropathy Conference

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

### Psychiatry Grand Rounds

Weekly Friday, 11:30-1:00 p.m., East Rm.

## KINO COMMUNITY HOSPITAL,(THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact: Eric C. Ramsay, M.D., Approved for Category 1 credit.

### Attending's Hour

5th Monday, 12:30 p.m., Contact: J. Goldberger, M.D.

### Infectious Disease Conference

3rd Monday, 12:30 p.m., Contact: Barry Friedman

### Ophthalmology Conference

1st Monday, 12:30 p.m., Contact: Bruce Gillers, M.D.

### Psychiatric Conference

2nd & 4th Mondays, Contact: J. Santiago, M.D.

### Surgical Conference

Weekly Mondays, Contact: R. Fischer, M.D.

### Cardiology Conference

4th Tuesday, 12:30 p.m., Contact: B. Phibbs, M.D.

### Clinical Pharmacology Conference

5th Tuesday, 12:30 p.m., Contact: M. Katz, Clinical Pharm.

### Neurology Conference

1st & 3rd. Tuesday, 12:30 p.m., Contact: J. Laguna, M.D.

### Radiology Conference

2nd Tuesday, 12:30 p.m., Contact: M. Baker, M.D.

### Medical Surgical Grand Rounds

2nd Wed., 12:30 p.m., Contact: Chief Medical Resident

### Medical Conference

1st Wed, 12:30 p.m., Contact: Chief Medical Resident

### Cardiology Conference

1st Thursday, 12:30 p.m., Contact: B. Phibbs, M.D.

### Endocrine Conference

2nd Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

### GI Conference

4th Thursday, 12:30 p.m., Contact: C. Kanun, M.D.

### Mortality & Morbidity Conference

3rd. Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

### OB/GYN Dept. Meeting

2nd Thursday, 2 p.m., Contact J. Wurzel, M.D.

### OB/GYN Pathology Conference

Weekly, Thursday, except 2nd, Contact: J. Wurzel, M.D.

### OB/GYN Sonograph/X-ray Conference

4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

### Clinical Pathology

5th Thursday, 12:30 p.m., Contact: J. Fleishman, M.D.

### Renal Conference

1st Friday, 12:30 p.m., Contact: T. Pence, M.D.

### Hematology Conference

2nd & 4th Friday, Contact: S. Ketchel, M.D.

### Rheumatology Conference

3rd Friday, 12:30 p.m., Contact: J. Goldberger, M.D.

### Chest Conference

5th Friday, 12:30 p.m., Contact: D. Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008  
**Continuing Medical Education Program**  
Every other Wednesday, 7-8 a.m.

### Clinical Conferences

2nd & 4th Wednesday, 12-1 p.m., Medical Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008.  
Contact: Leonard Tamsky, M.D.

### Medicine Conference

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

### Chest Surgery Conference

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

### Hematology Conference

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

### OB/GYN Dept. Grand Rounds

Weekly Tuesday, 12 Noon, Santa Cruz Room

### Obstetrical Problem Conference

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

### Orthopedic Conference

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

### Pediatric Grand Rounds

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

### Urology Discharge Planning Conference

Weekly, 11:30 a.m., Station 42

### Hand Surgery Conference

Weekly Wed, a.m., Santa Cruz Rm.

### Neurosurgery Discharge Planning

Weekly Wed., 1:30 p.m., Station 42.

### OB/Neonatology Seminar

Weekly, Wed. 7:30 a.m., Yavapai Rm.

### Clinical Psychiatric Conference

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

### Surgery Conference

Weekly Wed., 7-8 a.m., Surgical Dept.

### Current Concepts in Medicine & Surgery

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

### Cardiology Conference

Weekly Thurs., 2 p.m., Santa Cruz Rm.

### OB/GYN Resident Conference

Weekly Thurs., 12 p.m., Yavapai Rm.

### GYN Endocrine Seminar

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

### OB/GYN Surgical Pathology Conf.

Weekly Friday, 7:30 a.m., Yavapai Rm.

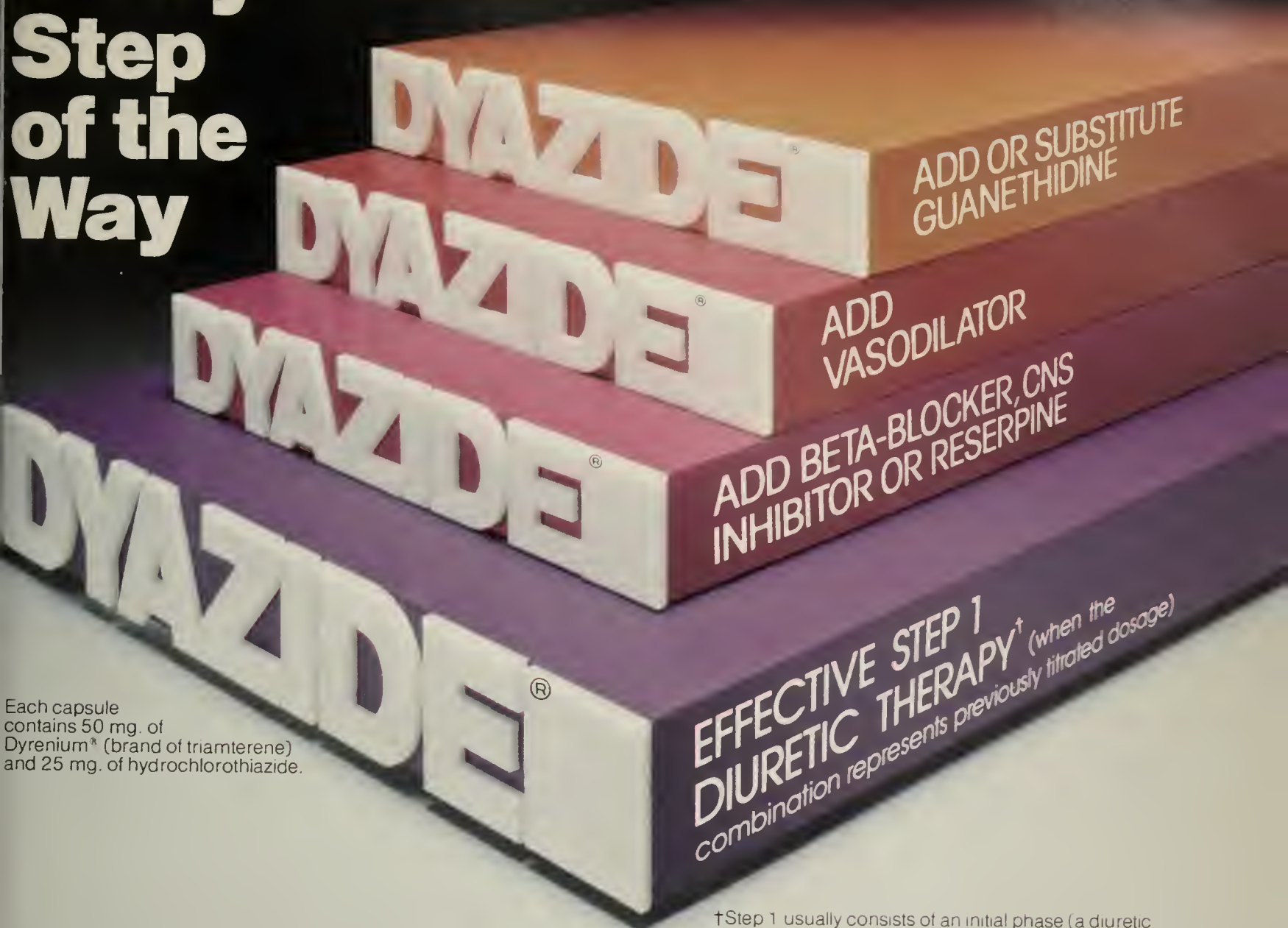
### Orthopedic X-Ray Conference

Weekly Friday, 7:30 a.m., Santa Cruz Rm.



# In Hypertension\*...When You Need to Conserve K<sup>+</sup>

## Every Step of the Way



Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

**EFFECTIVE STEP 1 DIURETIC THERAPY<sup>†</sup>** (when the combination represents previously titrated dosage)

<sup>†</sup>Step 1 usually consists of an initial phase (a diuretic alone), a titration phase (dosage adjustment and/or addition of a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent), and a maintenance phase (a diuretic alone or in combination with a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent).

Serum K<sup>+</sup> and BUN should be checked periodically (see Warnings).

Before prescribing, see complete prescribing information in SK&F Co. literature or PDR. The following is a brief summary.

#### WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically serum K<sup>+</sup> levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K<sup>+</sup> intake. Associated widened QRS complex or arrhythmia requires prompt additional therapy. Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and tri-

amterene may appear in breast milk. If their use is essential the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Watch for signs of impending coma in severe liver disease. If spironolactone is used concomitantly, determine serum K<sup>+</sup> frequently; both can cause K<sup>+</sup> retention and elevated serum K<sup>+</sup>. Two deaths have been reported with such concomitant therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis and aplastic anemia have been reported with thiazides. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. Dyazide interferes with fluorescent measurement of quinidine. Hypokalemia, although uncommon, has been reported. Corrective measures should be instituted

cautiously and serum potassium levels determined. Discontinue corrective measures and Dyazide should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. Dyazide should be withdrawn before conducting tests for parathyroid function.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth, anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions, nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances, necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and rarely allergic pneumonitis have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis and of impotence have been reported with the use of Dyazide although a causal relationship has not been established.

**Supplied:** Bottles of 1000 capsules. Single Unit Packages (unit-dose) of 100 (intended for institutional use only) in Patient-Pak™ unit-of-use bottles of 100.

© SK&F Co. 1980

**SK&F CO.**  
a SmithKline company  
Carolina PR 00630



# Motrin<sup>®</sup> vs aspirin w/codeine...

(ibuprofen)





# compare the analgesic effect

A Motrin 400 mg dose relieved postsurgical dental pain as effectively as a combination of 650 mg aspirin and 60 mg codeine (two aspirin-with-codeine No. 3 tablets) in a study of 129 patients.

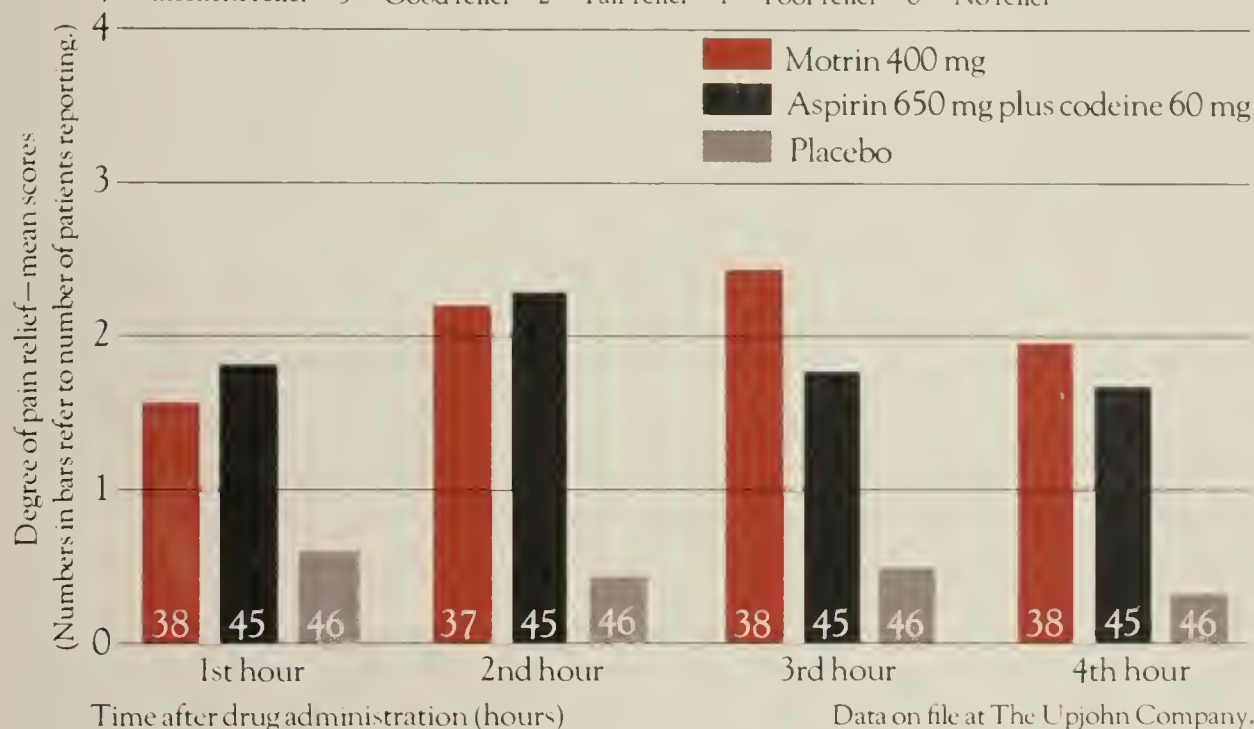
In this double-blind, placebo-controlled, randomized study, no statistically significant difference in relief of pain was noted at 1, 2, and 4 hours between the Motrin and aspirin-with-codeine groups... with Motrin being significantly more effective ( $p = 0.03$ ) at the three-hour interval.

Active treatment was significantly more effective ( $p < 0.0001$ ) than placebo at all time intervals.

## Comparison of pain relief

### Motrin vs aspirin-codeine combination

4 = Excellent relief 3 = Good relief 2 = Fair relief 1 = Poor relief 0 = No relief



One tablet q4-6h prn

For relief of mild to moderate pain:

**Motrin<sup>®</sup> 400mg** TABLETS  
ibuprofen, Upjohn

- Not a narcotic • Not addictive • Not habit forming • Nonscheduled
- Acts peripherally • Relieves pain rapidly • Relieves inflammation • Indicated in acute and chronic pain • Well tolerated (The most common side effect with Motrin is mild gastrointestinal disturbance.)

Please turn the page for a brief summary of prescribing information.

**Upjohn**

**Motrin<sup>®</sup>** (ibuprofen)

## now proved an effective analgesic for mild to moderate pain

**Motrin<sup>®</sup> Tablets** (ibuprofen, Upjohn)

**Indications and Usage:** Relief of mild to moderate pain.

Treatment of signs and symptoms of rheumatoid arthritis and osteoarthritis during acute flares and in long-term management. Safety and efficacy have not been established in Functional Class IV rheumatoid arthritis.

**Contraindications:** Individuals hypersensitive to it, or with the syndrome of nasal polyps, angioedema and bronchospastic reactivity to aspirin or other nonsteroidal anti-inflammatory agents (see WARNINGS).

**Warnings:** Anaphylactoid reactions have occurred in patients with aspirin hypersensitivity (see CONTRAINDICATIONS).

Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Ulceration, perforation, and bleeding may end fatally. An association has not been established. Motrin should be given under close supervision to patients with a history of upper gastrointestinal tract disease, only after consulting ADVERSE REACTIONS.

In patients with active peptic ulcer and active rheumatoid arthritis, nonulcerogenic drugs, such as gold, should be tried. If Motrin must be given, the patient should be under close supervision for signs of ulcer perforation or gastrointestinal bleeding.

**Precautions:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue Motrin and the patient should have an ophthalmologic examination, including central visual fields.

Fluid retention and edema have been associated with Motrin; use with caution in patients with a history of cardiac decompensation.

Motrin can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and those on anticoagulant therapy.

Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain, or edema.

To avoid exacerbation of disease or adrenal insufficiency, patients on prolonged corticosteroid therapy should have therapy tapered slowly when Motrin is added.

**Drug interactions.** *Aspirin:* Used concomitantly may decrease Motrin blood levels.

*Coumarin:* Bleeding has been reported in patients taking Motrin and coumarin.

**Pregnancy and nursing mothers:** Motrin should not be taken during pregnancy nor by nursing mothers.

### Adverse Reactions

#### **Incidence greater than 1%**

**Gastrointestinal:** The most frequent type of adverse reaction occurring with Motrin is gastrointestinal (4% to 16%). This includes nausea,\* epigastric pain,\* heartburn,\* diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of the GI tract (bloating and flatulence). **Central Nervous System:** Dizziness,\* headache, nervousness. **Dermatologic:** Rash\* (including maculopapular type), pruritus. **Special Senses:** Tinnitus. **Metabolic:** Decreased appetite, edema, fluid retention. Fluid retention generally responds promptly to drug discontinuation (see PRECAUTIONS).

\*Incidence 3% to 9%.

#### **Incidence less than 1 in 100**

**Gastrointestinal:** Upper GI ulcer with bleeding and/or perforation, hemorrhage, melena.

**Central Nervous System:** Depression, insomnia. **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme. **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure. **Special Senses:** Amblyopia (see PRECAUTIONS). **Hematologic:** Leukopenia, decreased hemoglobin and hematocrit.

#### **Causal relationship unknown**

**Gastrointestinal:** Hepatitis, jaundice, abnormal liver function. **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities. **Dermatologic:** Alopecia, Stevens-Johnson syndrome. **Special Senses:** Conjunctivitis, diplopia, optic neuritis. **Hematologic:** Hemolytic anemia, thrombocytopenia, granulocytopenia, bleeding episodes. **Allergic:** Fever, serum sickness, lupus erythematosus syndrome. **Endocrine:** Gynecomastia, hypoglycemia. **Cardiovascular:** Arrhythmias. **Renal:** Decreased creatinine clearance, polyuria, azotemia.

**Overdosage:** In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine, so alkaline diuresis may be beneficial.

**Dosage and Administration:** Rheumatoid arthritis and osteoarthritis, including flares of chronic disease: Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d. Mild to moderate pain: 400 mg every 4 to 6 hours as necessary for relief of pain.

Do not exceed 2400 mg per day.

**Caution:** Federal law prohibits dispensing without prescription.

For additional product information, see your Upjohn representative or consult the package insert.

## Send now for the only book on crime ever written by a dog!

Get hot tips on crime prevention from the Crime Dog himself! Me! Send for my book. It's got all the hit topics like: how to burglarproof your home, how not to get mugged, and more!

Write to:

McGruff™  
Crime Prevention  
Coalition,  
Box 6600  
Rockville,  
Maryland  
20850

and help.



## TAKE A BITE OUT OF CRIME™

A message from the Crime Prevention Coalition,  
this publication and The Ad Council.

© 1980 The Advertising Council, Inc.



**Upjohn**

THE UPJOHN COMPANY  
Kalamazoo, Michigan 49001 USA

MED B-4-S



## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.  
Contact: Leonard M. Lapenson, M.D.,  
Approved for category 1 credit.

### Clinical Conferences

1st & 3rd Tuesdays, 12 noon, 5th floor  
auditorium.

### CPC or Medical-Surgical Forum

4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.  
Contact: Leland L. Fairbanks, M.D.,  
Approved for category 1 credit.

### Pediatric Grand Rounds

1st Tuesday, 7:30-8:30 a.m., Contact: D.  
Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**  
Wed. Weekly, 8:00 a.m.

### Otolaryngology Grand Rounds

4th Wednesday, 4-5 p.m., Conference Rm. A,  
Contact: N. Wendell Tood, M.D.

### Family Practice/Emergency Room Teaching Conference

Thursday Weekly, 7:30-8:30 p.m., Conf. Rm.  
A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:  
George Scharf, M.D. Approved for category 1  
credit.

### Monthly Medical Education Seminar

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

### Clinical Conferences

Weekly Tuesday, 12:30 p.m., Kiva  
Conference Rm.

### Tumor Board Conference

Weekly Friday, 12 p.m., Kiva Conf. Rm.  
Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251.  
Contact: W. S. Williams, M.D., Approved for  
category 1 credit.

### Family Practice Conference

1st Monday, 12:30 p.m., Doctors' Lounge

### Emergency Medical Services Conference

2nd Monday, 12:30 p.m., Doctors' Lounge

### Neurology/Neurosurgery Conference

3rd Monday, 12:30 p.m., Doctors' Lounge

### CPC Conference

4th Monday, 12:30 p.m., Doctors' Lounge

### Pediatrics Conference

5th Monday, 12:30 p.m., Doctors' Lounge

### Pulmonary Conference

1st Tuesday, 12:30 p.m., Doctors' Lounge

### Cardiology Conference

2nd Tuesday, 12:30 p.m., Doctors' Lounge

### Surgery Conference

3rd Tuesday, 12:30 p.m., Doctors' Lounge

### Resident Grand Rounds

4th Tuesday, 12:30 p.m., Doctors' Lounge

### Medical Subspecialties

5th Tuesday, 12:30 p.m., Doctors' Lounge

### Urology Conference

3rd Thursday, 12:30 p.m., Doctors' Lounge

### Tumor Conference

4th Thursday, 12:30 p.m., Doctors' Lounge

### GI/Med/Surg/Radiology Conference

2nd Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85013.  
Contact: Joseph C. White, M.D.

### OB/GYN Section Conference

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor  
Conf. Rm.

### Genetics Conference

Weekly Monday, 12:30 p.m., Pediatric  
Department.

### Pediatric Rounds

Weekly Monday, Wed. & Friday, 10:30 a.m.,  
Pediatric Department.

### Pediatric Grand Rounds

4th Tuesday, 7:30-8:30 a.m., Contact: J. Kipp  
Charlton, M.D.

### ECG Conference

Weekly Tuesday, 12:30 p.m., Pediatric  
Department.

### Medical Grand Rounds

Weekly Wednesday, 8 a.m., 1st Floor Conf.  
Room.

### Visiting Professor Formal Presentation

Weekly Thursday, 8 a.m., PIMC

### Visiting Professor Informal Presentation

Weekly Thursday, 9:30 a.m., 1st floor Conf.  
Rm.

### Visiting Professor Formal Presentation

Weekly Thursday, 12:30 p.m., PIMC

### Nephrology Conference

Weekly Fridays, 12:30 p.m., Pediatric  
Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact:  
Eric G. Ramsay, M.D. Approved for Category  
1 credit.

### Family Practice Department Meeting

3rd Tuesday, 12 p.m., Contact: Wm.  
Moteforte.

### Ophthalmology Morbidity/Mortality Conf.

4th Tuesday, 12:15 p.m., Contact: Kim  
Sowards.

### Current Concepts in Medicine

Weekly, Tuesday, 12 p.m., Auditorium.

### Hematology-Oncology Conference

Last Wednesday, 12:15-1:15 p.m., Contact: S.  
Salmon, M.D.

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact:  
Gerald L. Hansbro, M.D.

### Cardiac Conference

Weekly Monday, 12:15 p.m., Auditorium

### Surgery Conference

1st Tuesday, 12:15 p.m., Auditorium

### Emergency Medicine Conference

1st Wednesday, 12:15 p.m., Auditorium

### Cardiovascular-Thoracic Record Review

3rd Wednesday, 12:15 p.m., Auditorium

### Psychiatry Conference

3rd Thursday, 7 a.m., Auditorium

### Combined Medical General Practice Conference

1st Friday, 12:15 p.m., Auditorium

### Toxicology Grand Rounds

2nd Friday, 7:30 a.m., Auditorium

### Ophthalmology Conference

1st Saturday, 8:30 a.m., Auditorium.

## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W. St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.

### Monthly Specialty Conference-Dept. of Surgery

1st Monday, 7:30 a.m., Century Rm. A.,  
Contact: Med. Staff Office.

### Grand Rounds: Medical Surgical, Family Practice, Pathology, Radiology

Weekly Thursday

### Emergency Medicine Lectures

Weekly Thursday, 8 a.m., Century Room A.

### Mental Health Update

1st Friday, 11:30-1:00 p.m., Century Rm. A.

### Cardiology Conference

Weekly Friday, 8:00-9:00 a.m., Century Rm.,  
Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.  
Contact: Eric G. Ramsay, M.D. Approved for  
Category 1 credit.

### Cardiology Conference

Weekly Monday, except last, 12 Noon,  
Contact: J. Fernandez, M.D.

### Dermatology Conference

4th Monday, 5:00 p.m., Contact: R. Miller,  
M.D.

### Endocrinology Conference

Last Monday, 12 p.m., Contact M. Parker,  
M.D. **Perinatal Conference**

2nd Monday, 7:30 p.m., Contact: J. Lohman,  
M.D.

### Chest Conference

3rd Tuesday, 12 noon, Contact: William  
Nevin, M.D.

### Hematology Conference

4th Tuesday, 12 Noon, Contact: M. Boxer,  
M.D.

### Infectious Disease Conference

2nd Tuesday, 12 noon, Contact: B. Friedman,  
M.D.

### Nephrology Conference

1st Tuesday, 12 noon, Contact: Dr. Seltzer.

### Orthopedic Conference

1st Tuesday, 8:00 p.m., Contact: Jay Katz,  
M.D.

### Pediatric Grand Rounds

1st & 3rd Tuesday, 12:30 p.m., Contact: Dr.  
Lightner.

### Cardiac Cath. Conference

2nd & 4th Wednesday, 5:15 p.m., Contact: L.  
Buckels, M.D.

### Clinical Pathology Conference

Last Wednesday, 8:00 a.m., Contact: Dr.  
Fuchs.

### Family Practice Meeting

2nd Wednesday, 12:30 p.m., Jan., April, July,  
& Oct. Contact: C. Mangelsdorf, M.D.

### Medical Conference

Weekly Wednesday, 8:00 a.m., Contact: M.  
Fuchs, M.D.

### Neurology-Neurosurgery Conference

Weekly Wednesday, 12 noon, Contact: H. W.  
Buschsbaum, M.D.

### Dermatology Conference

1st Thursday, 12 noon, Contact: R. Friedman,  
M.D.

### Neuroradiology Conference

Weekly Thursday, 5:00 p.m., Contact: N.  
Komar, M.D.



**Tumor Conference**

Weekly Thursday, 12 noon, Contact: Dr. Hastings.

**G—I Conference**

Weekly Friday, 12 noon, Contact: C. Krone, M.D.

**Interhospital Nuclear Medicine Conference**

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts, M.D.

**OBGYN Conference**

1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

**OBGYN Pathology Conference**

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

**Surgical Department Conference**

Weekly Saturday, 7:30 a.m., Contact: Dr. Hastings, TMC.

**Surgical Grand Rounds**

Weekly Saturday, 9:00 a.m., UAHSC-Room 5403, Contact: Dr. Norton.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix, AZ 85012. Contact: Alfred Heibrunn, M.D. Approved for Category 1 credit.

**GI X-Ray Clinical Correlation Conf.**

1st & 3rd Monday, 1 p.m., Rm. C435, Contact: Drs. Sanowski, & Nielsen.

**Medical/Surgical GI Conference**

1st & 3rd. Mondays, 3 p.m., Rm. 3134, Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext 493.

**GI Pathology Conf.**

2nd. & 4th Monday, 1 p.m., Path Conf. Rm, Contact: Dr. Sanowski..

**GI Grand Rounds**

Weekly Tuesday, 1 p.m., Contact: Drs. Sanowski, Kozarek & Partyka

**Cancer Symposium**

Weekly Wed., 1 p.m., T-5, Contact: Dr. Byrne, Ext. 426.

**Housestaff Pulmonary Disease Teaching Conf.**

Weekly Wed., 3-4 p.m., Contact: Dr. Rohwedder, Ext. 388.

**Medical Surgical Chest Conference**

1st & 3rd Thursday, Contact: Dr. Rohwedder or Dr. Gill.

**Cardiology Conference**

2nd Thursday, 1 p.m., Rm. T-5.

**Consultant Rounds**

1st Thursday, 1:30 p.m., Contact: Dr. Harlan

**Consultant Rounds**

2nd Thursday, 11:00 a.m., Contact: Dr. Schaffner

**Consultant Rounds**

4th Thursday, 8:00 a.m., Contact: Dr. Severino

**Medical Service Grand Rounds**

Weekly Friday, 11 a.m., Contact: Dr. Zeller

**GI Resident Conference**

Weekly Friday, 1:00 p.m., D446, Contact: Drs. Grobe, Phelps, Sanowski and Kozarek.

**Surgical Journal Review & Videotape Session**

Weekly 1 p.m., Room 3134.

## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed below. Approved for category 1 credit.

**Medical Lectures**

1st & 2nd Thursday & Weekly, Fridays, 1:30 p.m., Bldg. 28. Contact: J. W. Fitzharris, D.O.

**GI Rounds**

Third Thursday, 10 a.m.-2:30 P.M., Contact: J. W. Fitzharris, D.O.

**Grand Rounds**

Weekly Thursdays, 11 a.m., Bldg. 107. Contact: J. W. Fitzharris, D.O.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723. Contacts listed below. Approved for category 1 credit.

**Medical Surgical Chest Conference**

Weekly Tuesday, 2 p.m., Contact: Dr. Young

**Medical Grand Rounds**

Weekly Wed., 12-1:00 p.m., VA Hospital Staff Conf. Rm. & (AHSC), Contact: Jay Smith, M.D.

**Surgical Grand Rounds**

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

**Endocrinology Seminar**

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm. N318, Contact: Dept. of Internal Medicine.

**Grand Rounds**

Weekly, Thursday, 11 a.m., Bldg. 107, Contact: J. Fitzharris, D.O.

**Vascular Radiology, Interesting Case Conf.**

Weekly Thursday, 12:00 noon.

**Neurology Grand Rounds**

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

**Radiology Conference**

1st Tuesday, 7:00 a.m.

**Operation Outreach**

2nd Tuesday, 6:30 p.m.

**Pathology Conference**

4th Tuesday, 7:00 a.m.

**Operation Outreach**

2nd Wednesday, 7:00 a.m.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson, AZ 85724. Robert M. Anderson, M.D., Dir. of CME. Contact: See below. Approved for category 1 credit.

**Anesthesiology Board Review Conference**

2nd & 4th Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contacts: Dr. Vaughn & Kryw.

**Anesthesiology Basic/Clinical Sciences Lectures**

Weekly Thursday, 4-5 p.m., Room 5403

**Anesthesiology Case Discussion**

Weekly Wed., 7:00 a.m., AHSC, Dining Rm. C&D.

**Anesthesiology Resident Presentation**

1st Monday, 4-5 p.m., AHSC Dining Room, C&D, Contacts: Drs. Otto & Zehngut.

**Cancer Center Tumor Board Seminar**

3rd Tuesday, Monthly, 12-1 p.m., HSC Auditorium, Contact: Cancer Center

**Cardiac Catheterization Conference**

Weekly Friday, 4:00 p.m., Contact: Dr. Temkin.

**Cardiology Research Conference**

Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

**Tucson Cardiovascular Society**

1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

**Cerebrovascular Disease Conference**

Weekly Monday, 5:00-6:00 p.m., AHSC, Rm. 5505, Contact: Dr. W. Moore

**Clinical Immunology, Allergy****& Rheumatology Rounds**

Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

**Cerebrovascular Disease Conference**

Mondays, 5-6 p.m., Weekly, Rm. 5505. Contact: Wesly Moore, M.D., Depts. of Surgery, Neurology & Radiology.

**Dermatology Rounds**

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

**Endocrinology Seminar**

Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

**Emergency Medicine Grand Rounds**

Tuesdays, 9 a.m., AHSC, Contact: Dr. Sanders.

**GI Pathology Conference**

4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

**GI Radiology Conference**

2nd. & 4th Mondays, 7:30 a.m., AHSC, Contact: Dr. T. Hunter

**Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact: Dr. Manning

**Hematology-Oncology Clinical Conference**

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact: S. Salmon, M.D., Dept. of Internal Medicine.

**Medical Grand Rounds**

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

**Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

**Neuropathology Review Conference**

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

**Neuroradiology Conference**

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

**Neuromuscular Journal Conference**

2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

**Neuropathology Case Review**

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

**Neurosciences Seminar**

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

**Nuclear Medicine**

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

**Ophthalmology Grand Rounds**

3rd Friday, 7:30 a.m., AHSC, Contact: Dr. J. Herschler

**Orthopedic Rounds**

Saturday, 8:00 a.m., Contact: Dr. Peltier.

**Pain Conference**

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

**Pathology Seminar**

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

**Tucson Pathologist Conference**

1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

**Pediatric Grand Rounds**

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.





**Acute pain  
is no laughing matter.**

## **The first prescription for the first days of acute pain Empirin® $\bar{c}$ Codeine #3**

Each tablet contains: aspirin, 325 mg; plus codeine phosphate, 30 mg, (Warning — may be habit-forming). 

**For the millions of patients who need the potency  
of aspirin and codeine for their acute pain.**

The pain of fractures, strains, sprains, burns and wounds is at its peak during the first three to four days following trauma. The potent action of Empirin  $\bar{c}$  Codeine begins to work within 15 minutes of oral administration, an important advantage during this acute pain period. Empirin  $\bar{c}$  Codeine has unique bi-level action to attack pain at two critical points: peripherally at the site of injury and centrally at the site of pain awareness.

For the most effective dosage in treating acute pain, begin with... two tablets of Empirin  $\bar{c}$  Codeine #2 or #3, every four hours. Titrate downward as pain subsides.

### **EMPIRIN® with Codeine**

**DESCRIPTION:** Each tablet contains aspirin (acetylsalicylic acid) 325 mg plus codeine phosphate in one of the following strengths: No. 2 — 15 mg, No. 3 — 30 mg, and No. 4 — 60 mg. (Warning — may be habit-forming.) 

**CONTRAINDICATIONS:** Hypersensitivity to aspirin or codeine

#### **WARNINGS:**

**Drug dependence:** Empirin with Codeine can produce drug dependence of the morphine type and, therefore, has the potential for being abused. Psychic dependence, physical dependence, and tolerance may develop upon repeated administration of this drug and it should be prescribed and administered with the same degree of caution appropriate to the use of other oral, narcotic-containing medications. Like other narcotic-containing medications, the drug is subject to the Federal Controlled Substances Act.

**Use in ambulatory patients:** Empirin with Codeine may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery. The patient using this drug should be cautioned accordingly.

**Interaction with other central nervous system (CNS) depressants:** Patients receiving other narcotic analgesics, general anesthetics, phenothiazines, other tranquilizers, sedative-hypnotics, or other CNS depressants (including alcohol) concomitantly with Empirin with Codeine may exhibit an additive CNS depression. When such combined therapy is contemplated, the dose of one or both agents should be reduced.

**Use in pregnancy:** Safe use in pregnancy has not been established relative to possible adverse effects on fetal development. Therefore, Empirin with Codeine should not be used in pregnant women unless, in the judgment of the physician, the potential benefits outweigh the possible hazards.

#### **PRECAUTIONS:**

**Head injury and increased intracranial pressure:** The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions or a pre-existing increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the clinical course of patients with head injuries.

**Acute abdominal conditions:** The administration of Empirin with Codeine or other narcotics may obscure the diagnosis or clinical course in patients with acute abdominal conditions.

**Allergic:** Precautions should be taken in administering salicylates to persons with known allergies; patients with nasal polyps are more likely to be hypersensitive to aspirin.

**Special risk patients:** Empirin with Codeine should be given with caution to certain patients such as the elderly or debilitated, and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, prostatic hypertrophy or urethral stricture, peptic ulcer, or coagulation disorders.

**ADVERSE REACTIONS:** The most frequently observed adverse reactions to codeine include light-headedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients and some of these adverse reactions may be alleviated if the patient lies down. Other adverse reactions include euphoria, dysphoria, constipation, and pruritus.

The most frequently observed reactions to aspirin include headache, vertigo, ringing in the ears, mental confusion, drowsiness, sweating, thirst, nausea, and vomiting. Occasional patients experience gastric irritation and bleeding with aspirin. Some patients are unable to take salicylates without developing nausea and vomiting. Hypersensitivity may be manifested by a skin rash or even an anaphylactic reaction. With these exceptions, most of the side effects occur after repeated administration of large doses.

**DOSAGE AND ADMINISTRATION:** Dosage should be adjusted according to the severity of the pain and the response of the patient. It may occasionally be necessary to exceed the usual dosage recommended below in cases of more severe pain or in those patients who have become tolerant to the analgesic effect of narcotics. Empirin with Codeine is given orally. The usual adult dose for Empirin with Codeine No. 2 and No. 3 is one or two tablets every four hours as required. The usual adult dose for Empirin with Codeine No. 4 is one tablet every four hours as required.

**DRUG INTERACTIONS:** The CNS depressant effects of Empirin with Codeine may be additive with that of other CNS depressants. See WARNINGS.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709

**Pediatric Problem Patient Conference**

Weekly Wed., 8:00 a.m., Contact Dr. Walson

**Pediatric Research Forum**

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

**Pediatric Specialty Conference**

Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

**Psychiatric Grand Rounds**

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

**Psychiatric Monthly Case Conference**

2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

**Pulmonary Rounds**

Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

**Chest Radiology**

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

**Neuroradiology Teaching Conference**

Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

**Radiation Oncology Planning Conference**

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

**Radiology Interesting Case Conference**

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

**Gastrointestinal Radiology**

Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

**Radiology-Rheumatology Conference**

Weekly Thursday, 7:45 a.m., UAHSC, Library Rm.1535C.

**Uroradiology (Genitourinary Radiology)**

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

**Renal Pathology Conference**

1st & 3rd Thurs., 11:30 a.m., Contact: Dr. Nagle.

**Residents Noon Conference**

Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact: Dr. A. Greensher.

**Resident's Conference**

Wednesday, weekly 5-6 p.m., Diag. Radiology Conf. Rm.

**Surgical Grand Rounds**

Saturdays, 9:00 a.m., Rm. 5403, AHSC, Contact: Dr. Wangenstein.

**Surgical Morbidity & Mortality Conference**

Weekly Wed., 8:00 a.m., Contact: Dr. Wangenstein.

**Joint Thyroid Conference**

1st & 3rd Wed., Contact: S. C. Werner, M.D.

**Trauma Conference**

Monday, 4:00 p.m. UAHSC, Rm. 4410, Contact: Dr. Peltier.

**Toxicology Conference**

Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes Section.

**Tucson Ultrasonography Group**

Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

**General Urology Conference**

Weekly Tuesday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach.

This publication  
is available in microform.



University Microfilms  
International

Please send additional information  
for \_\_\_\_\_

(name of publication)

Name \_\_\_\_\_

Institution \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, Mi. 48106  
U.S.A.

30-32 Mortimer Street  
Dept. P.R.  
London WIN 7RA  
England





## CHANCES ARE, THE CHECK WILL COME BACK FASTER IF YOU FILE A CLAIM FOR THEM.

Filing an insurance claim is really very simple. But most patients seldom file one. So their chances of making an error, or putting off mailing it, are greater. Those errors and delays make everybody unhappy. But together we can avoid that.

Blue Cross and Blue Shield will soon be unveiling some "high-tech" claims-processing equipment, right here in Arizona. It will cut the turnaround time on an accurate claim for covered services, in *half*!

But we can't set the wheels in motion until an accurate claim is received, so we're asking your help.

Simply ask for the ID card, fill out the AMA uniform claim form, and see that it's mailed.

What's in it for you? Fast, accurate payment for the covered claims you submit in behalf of Blue Cross and Blue Shield patients. In a time of high interest, that's like money in the bank.

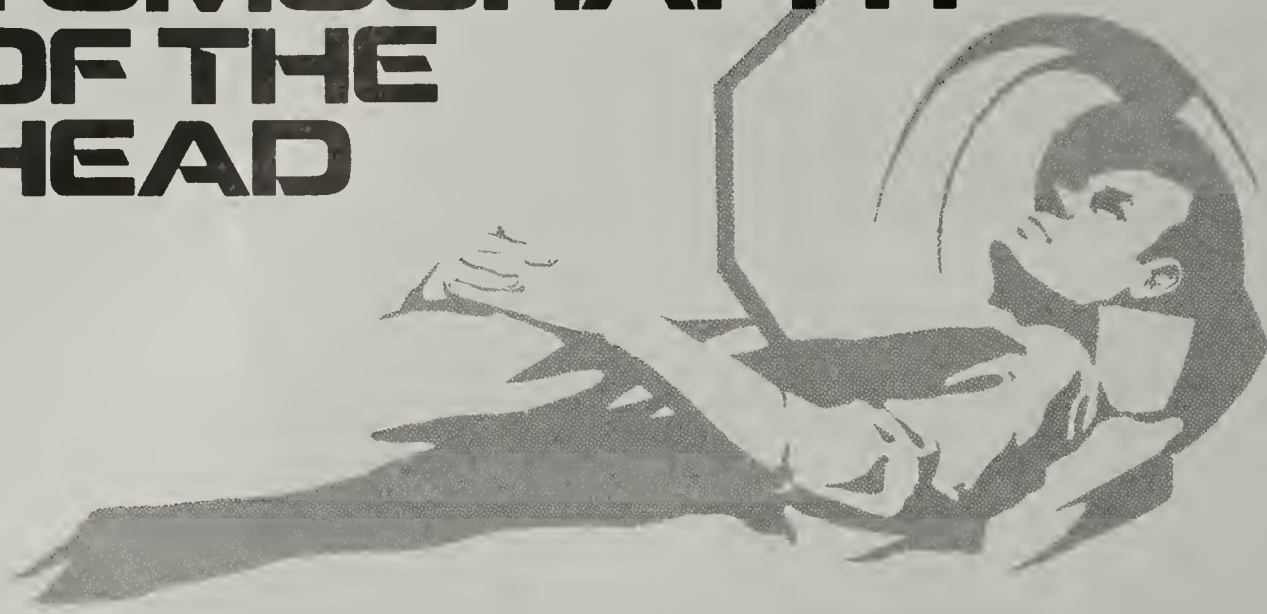
But there's a better reason: That simple step will relieve a lot of your patient's anxiety over "past due" notices from you.



**Blue Cross®  
Blue Shield®**  
of Arizona

**"MAKING IT EASIER"**

# COMPUTED TOMOGRAPHY OF THE HEAD



## **CNS** Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207 •  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

# ALCOHOLISM IS A FAMILY DISEASE

The Alcoholic drug abuser doesn't suffer alone. At least four others around him — family, friends, fellow employees — are affected

And they are just as ill as the dependent person in their own way.

St. Luke's Family Intervention Program is designed to help both the Alcoholic and those around him or her recognize and deal with their pain.

We invite referrals of your patients who finally admit that their case of "nerves, ulcers, gastroenteritis or high blood pressure" might have another name.

For further information, call:



## **ST LUKE'S HOSPITAL MEDICAL CENTER**

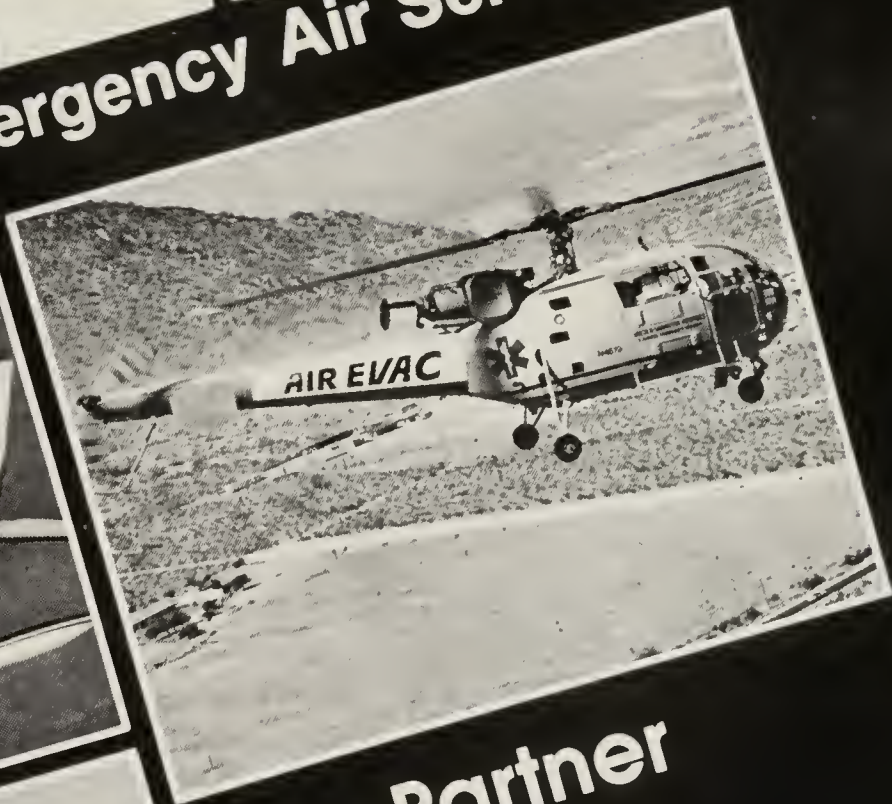
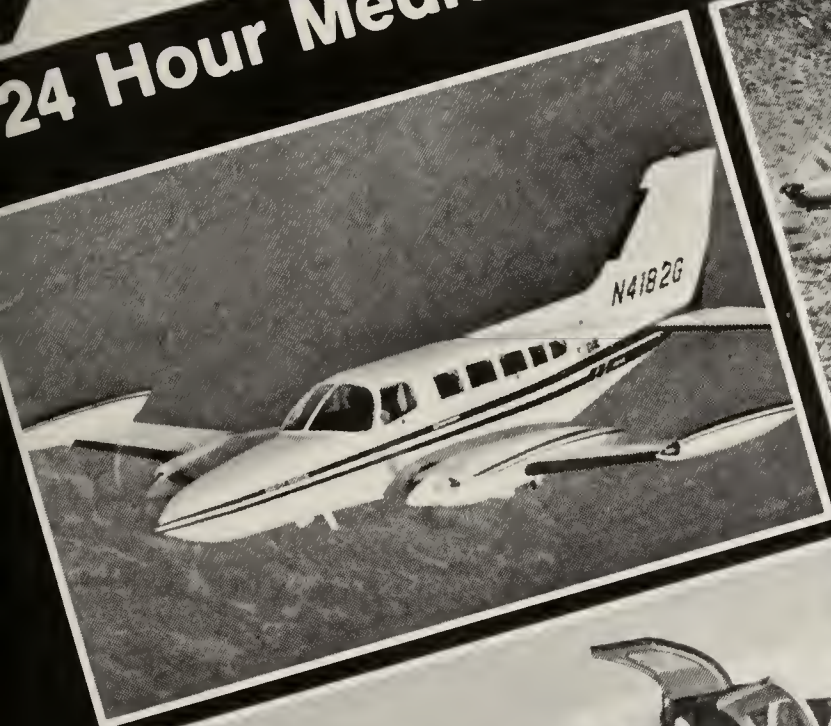
525 North 18th St.  
Phoenix, Arizona 85006  
(602) 258-7373 Ext. 313



Lincoln Samaritan

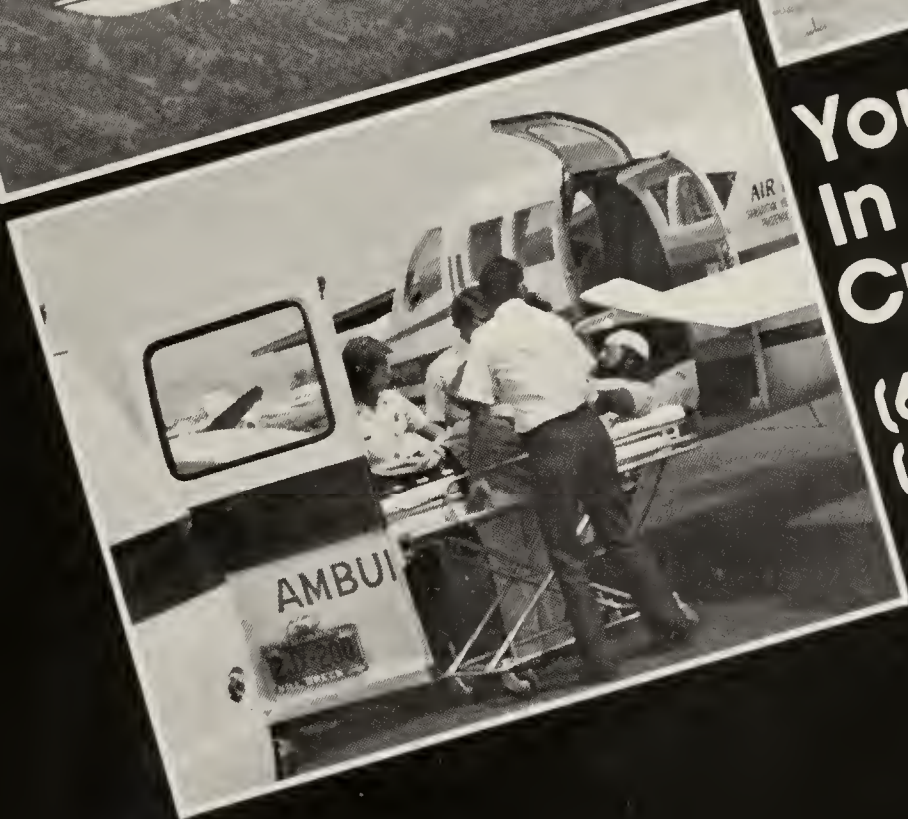
# AIR-ELVAC

24 Hour Medical Emergency Air Service



Your Partner  
In  
Critical Care  
(602) A-I-R-E-V-A-C  
(247-3822)

Our name is our number  
Serving Arizona and the Nation  
Since 1969





# THE ARIZONA MEDICAL ASSOCIATION, INC.

## “SECURITY PACKAGE”

The key word in any insurance program is security. ArMA's Board of Directors, working with the Medical Economics Committee and ArMA staff, has sponsored carefully designed insurance programs placed with excellent companies. The set-up of the over-all administration and local servicing assures you of prompt and courteous service in the unhappy event that you or your family should have a claim. Programs with service you can count on: **That's Security.**

The **Dean S. Davidson Insurance Agency, Inc.**, with over 40 years of experience in all lines of insurance (including several Arizona associations), and offices in Phoenix and Tucson, provides local service for all members. Should you need assistance at any time, trained personnel are available by phone or in person to assure efficient, thorough handling of your insurance programs.

The **Southern California Agency** has been working with ArMA for almost 30 years. Its affiliate, **Health Agencies of the West, Inc.**, coordinates the full administration (marketing, underwriting, billing, and claims services) of all insurance programs. They are specialists in professional association group insurance, who provide the finishing touches to our “SECURITY PACKAGE”.

### Term Life Insurance

underwritten by

Fireman's Fund

American Life Insurance Company



### Defendant's Reimbursement Insurance



underwritten by

National Casualty Company

### Spouse Life Insurance

underwritten by

Lincoln American Life

Insurance Company



### Professional Overhead Expense Insurance



underwritten by Occidental Life  
Insurance Company of California

### Disability Income Insurance

underwritten by

National Casualty Company



*Administered by*

### Accidental Death & Dismemberment Insurance



underwritten by

Fireman's Fund

American Life Insurance Company

## HEALTH AGENCIES OF THE WEST, INC.

*And Locally Serviced by*

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200  
Phoenix, Arizona 85016  
(602) 277-6672

630 Craycroft Road  
Tucson, Arizona 85711  
(602) 745-0793



# **SAVE \$650 ON MY OFFICE SUPPLIES??**

Arizona physicians are saving as much as 28% on purchases of professional supplies and equipment through the Western Physicians Purchasing Association, a non-profit organization partially owned by your state medical association.

The average WPPA member from Arizona saved \$458 in 1979 — more than 9 times the 1980 dues of \$50.00 per doctor.

Professional items, office supplies, professional equipment, office furniture . . . more than 16,000 items available.

## **HOW MUCH MONEY HAVE YOU LOST BECAUSE YOU HAVEN'T BEEN A WPPA MEMBER?**

For additional information, call WPPA at (801) 479-1767

**It's Easy . . .**

**Just Join The WPPA, It Will More Than Save you State Medical Association Dues—**

## **WESTERN PHYSICIAN PURCHASING ASSOCIATION**

**Another membership benefit of the  
Arizona Medical Association**

# COMPUTED TOMOGRAPHY, LTD.

## Cranial and Body CT Scanning

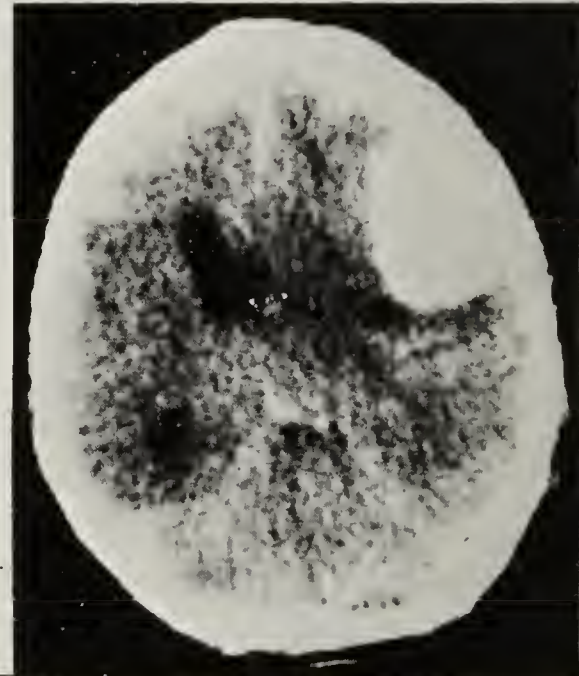
ARIZONA MEDICAL PLAZA  
1728 WEST GLENDALE AVENUE, SUITE LL3  
PHOENIX, ARIZONA  
PHONE 995-1557

**DELTA 50**  
**DELTA 2020**  
**2 Sec. Scanner**

PLAZA DEL RIO MEDICAL CENTER  
9419 WEST THUNDERBIRD ROAD  
SUN CITY, ARIZONA  
PHONE 972-1127



WALTER J. BROWN, M.D.  
JOHN B. FOX, M.D.  
ALFRED J. DELLA ROCCA, M.D.  
LELAND E. SARGENT, M.D.  
DONALD A. TOBIAS, M.D.  
ROBERT S. WALDMAN, M.D.



**This publication  
is available in microform.**



**University Microfilms International**

Please send additional information

Name \_\_\_\_\_  
Institution \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, Mi. 48106  
U.S.A.

30-32 Mortimer Street  
Dept. P.R.  
London W1N 7RA  
England

## MEDICAL BOOKSTORE



The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

**MEDICAL BOOKSTORE**

College of Medicine  
Arizona Health Sciences Center  
Tucson, Arizona 85724  
Phone: 626-6669



# What doctors should know. . . about lawyers

A physician's license to practice medicine is his or her most valuable asset. In Arizona, it can be suspended or permanently revoked by the Board of Medical Examiners based on the complaint of a single disgruntled patient. We strongly recommend that you discuss all Board inquiries with a lawyer who handles Administrative Law matters.



Van O'Steen and Partners  
Attorneys at Law

**O'Steen**  
VAN

2001 North Third Street  
Suite 100  
Phoenix, Arizona 85004  
602 • 252-8888

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"

## SELLARD ENGRAVING

*engraving for*

- Gifts • Name Plates • Award Plaques •
- Desk Accessories • Plastic Signs •
- Rubber Stamps • Keys •

*One Day Service*

Town and Country Shopping Center  
2051-A East Camelback Road  
Phoenix - Telephone: (602) 956-4270

## DANNY T. SEIVERT INSURANCE, INC.

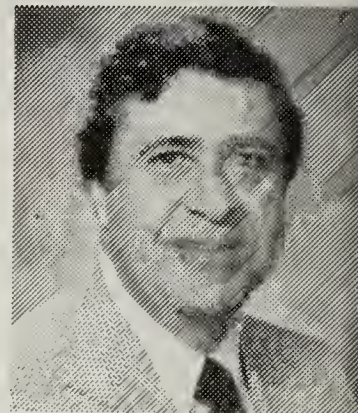
Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

## Louis Jacob

General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



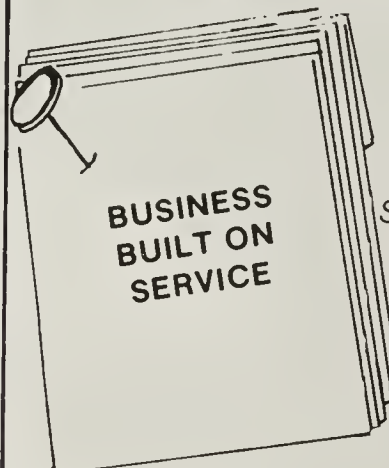
We Want You With Us



## L. Louis Jacob Agency

Complete Insurance Services  
Call Us for an Auto Quote

## GUARANTEED SAVINGS!!



Billing and mailing  
same — day services

*Statements made from your  
ledgers at your office*

House of Mailings  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708



**...Synonymous With  
the Relief of Headaches  
Concerning Practice  
Management Problems.**



**J. Prekup & Assoc.**  
Amanda L. Weaver

**Problem Solvers for the Medical Profession.**

3033 N. Central, Suite 509-C Phoenix, Az 85012  
(602) 279-1884

*Tired of all that money going out?*

**For a competitive Quote on:**

- Physicians & Surgeons Malpractice •
- Office Package •
- Automobile •
- Homeowners •



**PHOENIX-AMERICAN INSURANCE AGENCY**

1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*



## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### COLON AND RECTAL SURGEON

To join group or partnership, available July 1981. CV on request. Dennis A. Fried, M.D., Department of Colon and Rectal Surgery, Cleveland Clinic, Cleveland, Ohio. (216) 444-6671 or evenings (216) 752-5434.

### LOCUM TENENS WORK WANTED

The more you know about choices, the easier it is to choose. That's why CompHealth, the oldest, largest locum tenens organization in the United States, can help make choices easier for you. Any specialty can be covered including: FP, IM, Rad, Anes, and ObGyn. With a large selection of reliable qualified physicians to choose from, CompHealth provides physicians, hospitals, clinics and communities with dependable locum tenens coverage, allowing you to keep your practice covered without inconvenience or concern. Turn a difficult decision into an easy choice. Contact: COMPHEALTH, 175 West 200 South, Suite 2003, Salt Lake City, UT 84101. (801) 532-1200.

### SEEKING A POSITION

Board certified neurologist and psychiatrist with additional board certifications in both EEF and EMG seeking Arizona opportunity. Please reply Box AM510, c/o Arizona Medicine, 810 West Bethany Home Road, Phoenix, AZ 85013.

### CLINIC PHYSICIAN POSITION

Is available July 1, 1981. Large, active, well-staffed clinic. 500 plus bed teaching hospital. Prefer Internal Medicine background. Apply: Department of Medicine, Maricopa County General Hospital, 2601 East Roosevelt Street, Phoenix, AZ 85008.

## REAL ESTATE

### ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### FLAGSTAFF MEDICAL BUILDING LEASE AND OWN

Located next to the Flagstaff Hospital and Medical Center on the corner of Forest and Beaver Streets. A Pharmacy, laboratory and radiology in the complex plus parking easily accessible to either your office or the hospital makes the Flagstaff Medical Building the desired choice for the largest number of practicing physicians in any medical building located in Northern Arizona. Your customized medical office suite (ranging from 800 to 2000 sq ft) is now available at the most reasonable cost, plus the existing partnership is now offering those tenants signing leases before May 15, 1981 the opportunity to purchase an ownership interest in the building. Please contact: Bruce O. Utterback, C.P.M., Flagstaff Medical Building, 1355 N. Beaver, Flagstaff, Arizona 86001. (602) 774-4416.

### LINCOLN PLAZA MEDICAL CENTER

Medical/Dental Space for Lease - Prestigious area, design your own space. Highest tenant improvement allowance in the area. Very reasonable rates. Contact: Louise Farmer, 7125 E. Lincoln Drive, (602) 955-5595.

### MEDICAL SUITE FOR LEASE - CHANDLER

1000 sq. ft., garden suite available in North Chandler Medical Center, designed for medical tenant. Excellent lease and location. Contact: John Foltz, (602) 948-9450.

### PINETOP MOUNTAIN CABIN—FOR RENT

White Mountain summer home. Ideal now for springtime activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days 289-5081 evenings.

## MEMORIAL MEDICAL OFFICE BUILDING

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

### BEAUTIFUL CONDOMINIUM

Condominios Pilar  
San Carlos Bay, Mexico  
For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

### MESA OFFICE SPACE FOR SUBLEASE

1450 South Dobson Road. On grounds of Desert Samaritan Hospital. 1720 sq. ft. Suitable for Family Practice. Internal Medicine or other specialties. Medical equipment may be available (either for lease or sale.) One room designed for x-ray or regular exam room. Contact: (602) 831-8297. 301 W. Chilton, Chandler, Az 85224.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

### FOR SALE

Wooden plinth physical therapy table. Excellent condition \$150.00. Call (602) 956-7740.

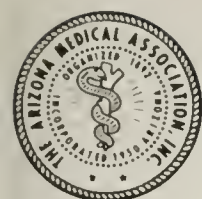
### FOR SALE

Medical office Lab Equipment for sale. Clay Adams Hematology Analyser, Model HA-3. Automated Hb, Hct, WBC & RBCs. Excellent working condition. \$875.00. M. Willard, M.D. (602) 942-6607.

## INDEX TO ADVERTISERS

|                                             |          |                                           |                           |
|---------------------------------------------|----------|-------------------------------------------|---------------------------|
| Advanced Computer Techniques.....           | 323      | Merrell National                          |                           |
| AirEvac.....                                | 399      | Bentyl.....                               | 328, 329, 330             |
| American Red Cross.....                     | 338      | Tenuate.....                              | 340, 341                  |
| The Anesthesia Office, Inc.....             | 332      | Mica Insurance Co.....                    | 334                       |
| Arizona Laminating.....                     | 336      | Mountain Bell.....                        | 327                       |
| Blue Cross/Blue Shield.....                 | 397      | Van O'Steen & Partners.....               | 403                       |
| Bristol Laboratories                        |          | Phoenix/American Insurance.....           | 404                       |
| Tegopen.....                                | 324, 325 | Prekup and Associates.....                | 404                       |
| Burroughs Wellcome                          |          | Roche Labs                                |                           |
| Zyloprim.....                               | 322      | Librax.....                               | 338, 339                  |
| Emprin with Codeine #3.....                 | 395      | Limbital.....                             | Second Cover, 321, 322    |
| Camelback Hospital.....                     | 326      | Bactrim.....                              | Third Cover, Fourth Cover |
| Classified Ads.....                         | 404, 405 | Valium.....                               | 335, 336                  |
| Clinical Diabetes Symposium.....            | 387      | Roswell Bookbinding.....                  | 330                       |
| Computed Neuorological Scanning Center..... | 398      | Sellards Engraving.....                   | 404                       |
| Computed Tomography.....                    | 402      | Sequoia Group, Inc.....                   | 337                       |
| Doctors Central Directory.....              | 404      | Danny T. Sievert                          |                           |
| Eli Lilly & Co.                             |          | Insurance.....                            | 404                       |
| Keflex.....                                 | 251      | Smith Kline & French                      |                           |
| HBA Life Insurance.....                     | 331      | Dyazide.....                              | 389                       |
| Health Agencies of the West.....            | 400      | St. Luke's Hospital & Medical Center..... | 398                       |
| House of Mailings.....                      | 404      | UpJohn Company                            |                           |
| Louis Jacobs.....                           | 404      | Motrin.....                               | 390, 391, 392             |
| Leasing of Phoenix.....                     | 330      | Valley Prosthetics.....                   | 336                       |
| Medical Bookstore.....                      | 402      | Western Physician                         |                           |
|                                             |          | Purchasing Assoc.....                     | 401                       |





# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

(ISSN 0004-1556)



U of A College of Medicine  
Symposia - Part II

## SEMINARS IN CONTINUING EDUCATION

- Introduction ..... 431  
*Bernard E. Levine, M.D.*
- Sudden Infant Death Syndrome ..... 432  
*Karen S. McCoy, M.D.*
- Transient Erythroblastopenia  
of Childhood ..... 436  
*James J. Corrigan, Jr., M.D.*
- Advances in Diagnosis and Clinical Laboratory  
Testing in Immunologic Disorders ..... 438  
*Mary Jane Hicks, M.D., et al.*
- Illness and Bereavement  
Unrecognized Implications for Prevention ..... 444  
*Stephen B. Shanfield, M.D.*
- Diagnosis and Treatment of Sleep Apnea  
Syndrome in Adults ..... 446  
*Lloyd A. Coaker, M.D., et al.*
- Differential Diagnosis of Insomnias  
and Parasomnias ..... 451  
*Alfred W. Kaszniak, Ph.D., et al.*
- Narcolepsy - A Brief Update ..... 455  
*Collin R. Bamford, M.D., et al.*
- Sleep Disturbance in  
Psychiatric Disorders ..... 457  
*John S. LaWall, M.D.*

## EDITORIALS

- Hyperthermia in Cancer Therapy  
*Michael R. Manning, M.D., et al.*
- Auxiliary Highlights  
Communication Was. . .  
the Name of the Game ..... 461  
*Joyce Newman*

## IN MEMORIAM

..... 462

## LEGISLATIVE BEAT

..... 468

## MEDICAL HISTORY

- Extracts from the Publications of the  
Arizona Medical Association ..... 471  
*John W. Kennedy, M.D.*

## ARMA REPORTS

..... 473

## FUTURE MEETINGS

..... 478

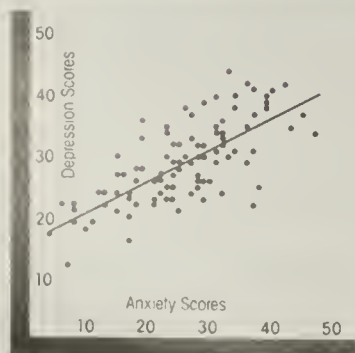
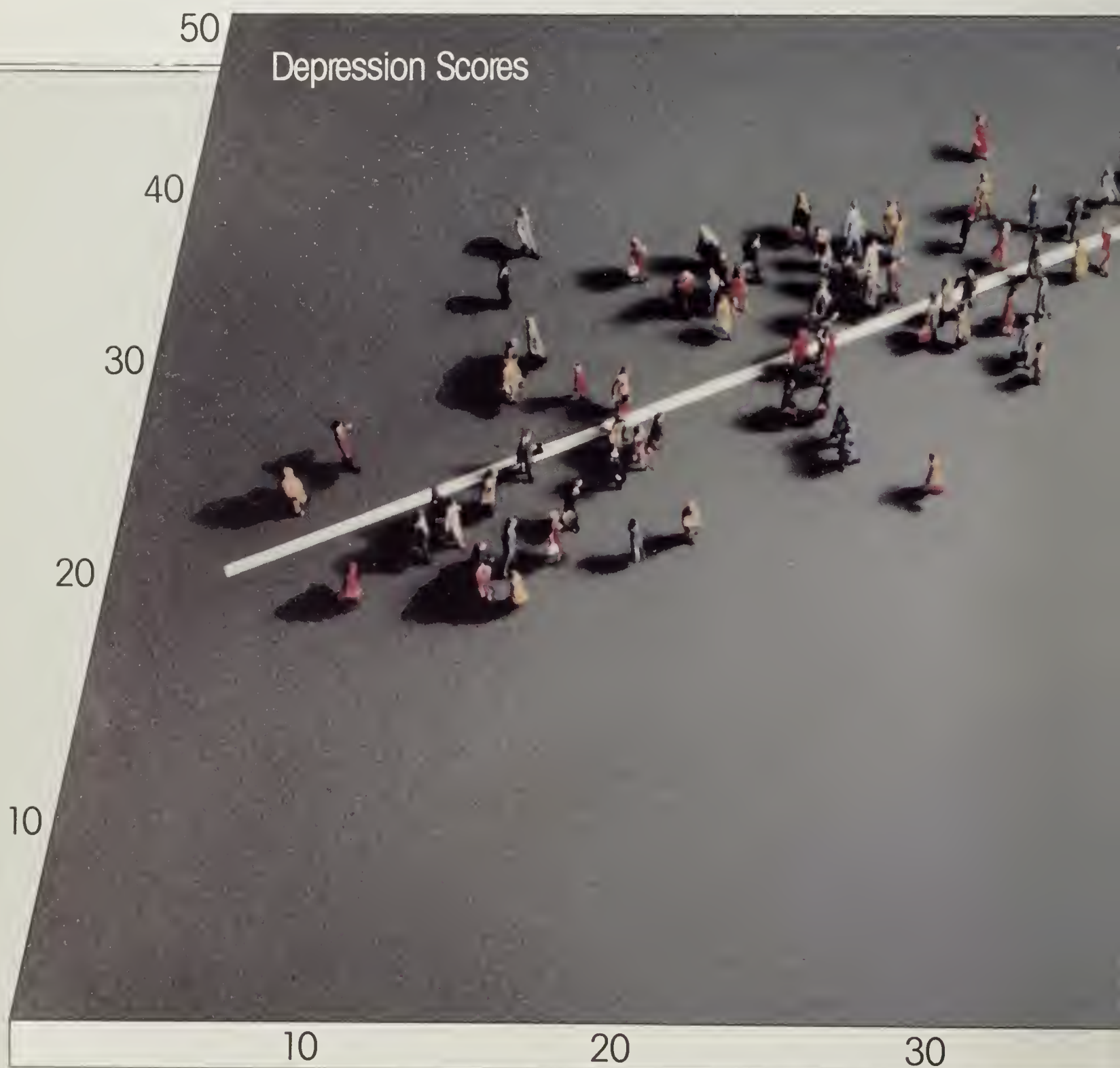
LIBRARY  
U.C. SAN FRANCISCO

JUN 23 1981

II, NO. 6

THE LIBRARY, ACQUISITIONS DIV.  
U. OF CALIF., S.F.  
SAN FRANCISCO, CA 94143

# FOR THE 7 OF 10 NONPSYCHOTIC



## Clear correlation between anxiety and depression<sup>3</sup>

The above graph illustrates a relationship between anxiety and depression, indicating that patients seldom present with anxiety or depression alone; more often they have both in varying degrees. Data based on a sampling of 100 outpatients (64 male; 36 female) seen at a general psychiatric clinic.

<sup>3</sup>Adapted from Claghorn, J. The anxiety-depression syndrome. *Psychosomatics* 11:438-441, Sept-Oct 1970.



# DEPRESSED PATIENTS WHO ARE ALSO ANXIOUS<sup>1,2</sup>

## Most depressed patients are also anxious. . .

Some authors estimate that 70% of all nonpsychotic patients with symptoms of depression have concomitant symptoms of anxiety.<sup>1,2</sup> One author found a distinct correlation between anxiety and depression scores in 100 nonpsychotic outpatients administered the Minnesota Multiphasic Personality Inventory in a general psychiatric clinic.<sup>3</sup> As depression scores increased, so did anxiety scores. No attempt was made to select patients other than to exclude psychotics.

## but not psychotic

The logic of treating both components of anxious depression is clear. Antipsychotics, like the phenothiazines, however, carry a well-documented risk of tardive dyskinesia.<sup>4</sup> Because of this, an APA Task Force recently recommended the judicious use of phenothiazines in cases other than chronic psychosis or the use of alternative treatments.

## A better way to give relief

Limbitrol combines the specific anxiolytic action of Librium® (chlordiazepoxide HCl/Roche)—a benzodiazepine with a long history of safe use—with the antidepressant action of amitriptyline, a tricyclic of established clinical efficacy. In comparison to phenothiazines, Limbitrol and its components have rarely been associated with tardive dyskinesia or other extrapyramidal side effects. And in terms of rapid response and patient compliance, Limbitrol appears to be superior to amitriptyline alone. Controlled multiclinic studies showed Limbitrol relieved more symptoms more rapidly than did amitriptyline.<sup>5</sup> Despite a higher incidence of drowsiness, the dropout rate due to side effects was lower with Limbitrol. (See adverse reactions section in summary of product information on next page. As with any CNS-acting agent, patients should be cautioned about driving or using dangerous machines while on therapy with Limbitrol.)

**References:** 1. Rickels K: Drug treatment of anxiety, in *Psychopharmacology in the Practice of Medicine*, ed. Jarvik ME. New York, Appleton-Century-Crofts, 1977, p. 316. 2. Schatzberg AF, Cole JO: Benzodiazepines in depressive disorders. *Arch Gen Psychiatry* 35:1359-1365, 1978. 3. Claghorn J: The anxiety-depression syndrome. *Psychosomatics* 11:438-441, 1970. 4. The Task Force on Late Neurological Effects of Antipsychotic Drugs: Tardive dyskinesia, summary of a task force report of the American Psychiatric Association. *Am J Psychiatry* 137:1163-1172, 1980. 5. Feighner JP *et al*: A placebo-controlled multicenter trial of Limbitrol versus its components (amitriptyline and chlordiazepoxide) in the symptomatic treatment of depressive illness. *Psychopharmacology* 61:217-225, 1979.

In moderate depression and anxiety

# Limbitrol® IV

**Tablets 5-12.5** each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)

**Tablets 10-25** each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt)

## Relief without a phenothiazine

Please see summary of product information on next page.

Anxiety Scores

50

## **LIMBITROL® TABLETS** Tranquilizer—Antidepressant

Before prescribing, please consult complete product information, or summary of which follows:

**Indications:** Relief of moderate to severe depression associated with moderate to severe anxiety

**Contraindications:** Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

**Warnings:** Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

**Usage in Pregnancy:** Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

**Precautions:** Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated. Sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12.

In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

**Adverse Reactions:** Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs.

**Cardiovascular:** Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke.

**Psychiatric:** Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.

**Neurologic:** Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.

**Anticholinergic:** Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

**Allergic:** Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.

**Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

**Gastrointestinal:** Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.

**Endocrine:** Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels.

**Other:** Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

**Overdosage:** Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. I.V. administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

**Dosage:** Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single *h.s.* dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

**How Supplied:** White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10, Prescription Paks of 50.

# MEDICAL BOOKSTORE



The only bookstore in Arizona devoted exclusively to books for the medical profession.

## MEDICAL BOOKSTORE

College of Medicine

Arizona Health Sciences Center

Tucson, Arizona 85724

Phone: 626-6669

*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

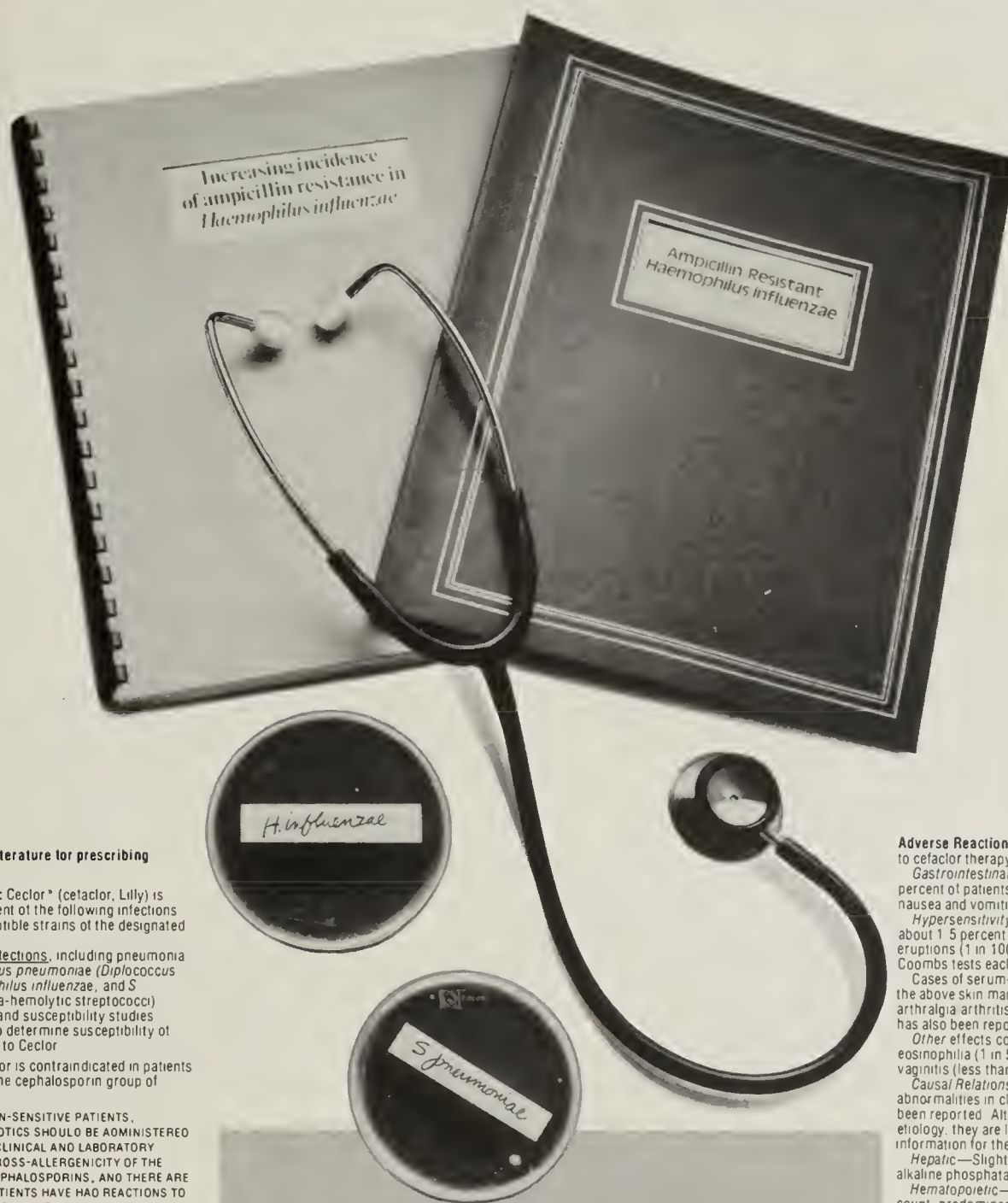
For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.

ROCHE

ROCHE PRODUCTS INC.  
Manati, Puerto Rico 00701



# An added complication... in the treatment of bacterial bronchitis\*



**Brief Summary.** Consult the package literature for prescribing information.

**Indications and Usage:** Cefclor\* (cefclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci)

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor

**Contraindication:** Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics

**Warnings:** IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS TO BOTH DRUG CLASSES (INCLUDING ANAPHYLAXIS AFTER PARENTERAL USE).

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

**Precautions:** If an allergic reaction to cefclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids

Prolonged use of cefclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistest\* tablets but not with Tes-Tape\* (Glucose Enzymatic Test Strip, USP, Lilly)

**Usage in Pregnancy:** Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus

**Usage in Infancy:** Safety of this product for use in infants less than one month of age has not been established

**Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis\*—are sensitive to treatment with Cefclor.<sup>1-6</sup>**

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.<sup>7</sup>

# Cefclor®

## cefclor

Pulvules\*, 250 and 500 mg

**Adverse Reactions:** Adverse effects considered related to cefclor therapy are uncommon and are listed below. Gastrointestinal symptoms occur in about 2-5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90)

**Hypersensitivity reactions** have been reported in about 1-5 percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients

Cases of serum-sickness-like reactions, including the above skin manifestations, fever, and arthralgia/arthritis, have been reported. Anaphylaxis has also been reported

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients)

**Causal Relationship Uncertain:** Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

**Hepatic:** Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40)

**Hematopoietic:** Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40)

**Renal:** Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200)

[103060R]

\*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*

**Note:** Cefclor\* (cefclor) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information

#### References

1. Antimicrob. Agents Chemother., 8:91, 1975
2. Antimicrob. Agents Chemother., 11:470, 1977
3. Antimicrob. Agents Chemother., 13:584, 1978
4. Antimicrob. Agents Chemother., 12:490, 1977
5. Current Chemotherapy (edited by W. Siegenthaler and R. Luthy), II:880. Washington, D.C. American Society for Microbiology, 1978
6. Antimicrob. Agents Chemother., 13:861, 1978
7. Data on file, Eli Lilly and Company
8. Principles and Practice of Infectious Diseases (edited by G.L. Mandell, R.G. Douglas, Jr., and J.E. Bennett), p. 487. New York: John Wiley & Sons, 1979



Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285  
Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630

100061



# DRAMATIC NEW CLINICAL PROOF\*

**In the treatment of impetigo—**

- **100% cure rate with Tegopen® (cloxacillin sodium)**
- **only a 60% cure rate with penicillin V-K**



**As seen on admission**



**After one week of penicillin V-K therapy**



**Two weeks after initiation of TEGOPEN therapy**

Treatment failure was judged to have occurred when lesions increased in size and/or number during the initial week of treatment with penicillin V-K. No treatment failures occurred with Tegopen.

\*Data on file, Bristol Laboratories.

#### Brief Summary of Prescribing Information

**TEGOPEN®**  
(cloxacillin sodium)  
Capsules and Oral Solution

For complete information, consult Official Package Circular.

(12) 9/11/75

#### INDICATIONS:

Although the principal indication for cloxacillin sodium is in the treatment of infections due to penicillinase-producing staphylococci, it may be used to initiate therapy in such patients in whom a staphylococcal infection is suspected. (See Important Note below.)

Bacteriologic studies to determine the causative organisms and their sensitivity to cloxacillin sodium should be performed.

#### IMPORTANT NOTE

When it is judged necessary that treatment be initiated before definitive culture and sensitivity results are known, the choice of cloxacillin sodium should take into consideration the fact that it has been shown to be effective only in the treatment of infections caused by pneumococci, Group A beta-hemolytic streptococci, and penicillin G-resistant and penicillin G-sensitive staphylococci. If the bacteriology report later indicates the infection is due to an organism other than a penicillin G-resistant staphylococcus sensitive to cloxacillin sodium, the physician is advised to continue therapy with a drug other than cloxacillin sodium or any other penicillinase-resistant semi-synthetic penicillin.

Recent studies have reported that the percentage of staphylococcal isolates resistant to penicillin G outside the hospital is increasing, approximating the high percentage of resistant staphylococcal isolates found in the hospital. For this reason, it is recommended that a penicillinase-resistant penicillin be used as initial therapy for any suspected staphylococcal infection until culture and sensitivity results are known.

Cloxacillin sodium is a compound that acts through a mechanism similar to that of methicillin against penicillin G-resistant staphylococci. Strains of staphylococci resistant to methicillin have existed in nature and it is known that the number of these strains reported has been increasing. Such strains of staphylococci have been capable of producing serious disease, in some instances resulting in fatality. Because of this, there is concern that widespread use of the penicillinase-resistant penicillins may result in the appearance of an increasing number of staphylococcal strains which are resistant to these penicillins.

Methicillin-resistant strains are almost always resistant to all other penicillinase-resistant penicillins (cross-resistance with cephalosporin derivatives also occurs frequently). Resistance to any penicillinase-resistant penicillin should be interpreted as evidence of clinical resistance to all, in spite of the fact that minor variations in *in vitro* sensitivity may be encountered when more than one penicillinase-resistant penicillin is tested against the same strain of staphylococcus.

#### CONTRAINDICATIONS:

A history of a previous hypersensitivity reaction to any of the penicillins is a contraindication.



**RESULTS OF ORAL THERAPY** revealed a high percentage of treatment failures with penicillin V potassium, but *no* failures with Tegopen.

|                                                                   |                     | Given Tegopen®<br>(cloxacillin sodium) | Given<br>penicillin V-K |
|-------------------------------------------------------------------|---------------------|----------------------------------------|-------------------------|
| <i>Staphylococcus aureus</i>                                      | (78 patients)       | 39                                     | 39                      |
| Returned to clinic at one week                                    |                     | 29†                                    | 38†                     |
| Treatment failure at one week                                     |                     | 0                                      | 18 (47.4%)              |
| <i>Staphylococcus aureus</i> and<br><i>Streptococcus pyogenes</i> | (9 patients)        | 4                                      | 5                       |
| Returned to clinic at one week                                    |                     | 4                                      | 5                       |
| Treatment failure at one week                                     |                     | 0                                      | 2 (40%)                 |
| No initial bacterial growth                                       | (14 patients)       | 9                                      | 5                       |
| All 14 healed, regardless of which antibiotic was administered.   |                     |                                        |                         |
| Beta-hemolytic <i>Streptococcus</i>                               | (1 patient)         | 0                                      | 1                       |
| <b>TOTALS:</b>                                                    | <b>102 patients</b> | <b>52 patients</b>                     | <b>50 patients</b>      |

†Eleven patients did not return for their one-week checkup. These were all called by telephone, and their families reported

the lesions had healed. One patient was dropped from the study, early, because of adverse reaction to medication.

## STUDY: DESCRIPTION/PROTOCOL

- 102 nonselected subjects, with initial bacteriology as follows: 77% *Staphylococcus aureus*, 9% mixed *Staphylococcus aureus* and *Streptococcus pyogenes*, and 1% beta-hemolytic *Streptococcus*.†
- All patients were given randomized therapy—Tegopen capsules or oral solution, or penicillin V-K tablets or oral solution, in recommended dosages according to body weight.

- All patients were evaluated after one week's therapy. If there was no improvement, therapy was switched to the other antibiotic. The "other antibiotic" proved to be Tegopen 100% of the time because no treatment failures had occurred with Tegopen.
- A final assessment of progress was made two weeks after initiation of Tegopen therapy.

†The remainder, to equal 100%, consisted of 14 patients (13%) who exhibited no initial bacterial growth. These 14 were all healed, whether given Tegopen or penicillin V-K.

# TEGOPEN®

(cloxacillin sodium)

**-effective therapy for staph infections  
of the skin and skin structures**

#### WARNING:

Serious and occasionally fatal hypersensitivity (anaphylactoid) reactions have been reported in patients on penicillin therapy. Although anaphylaxis is more frequent following parenteral therapy it has occurred in patients on oral penicillins. These reactions are more apt to occur in individuals with a history of sensitivity to multiple allergens.

There have been well documented reports of individuals with a history of penicillin hypersensitivity reactions who have experienced severe hypersensitivity reactions when treated with a cephalosporin. Before therapy with a penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, and other allergens. If an allergic reaction occurs, the drug should be discontinued and the patient treated with the usual agents, e.g., pressor amines, antihistamines, and corticosteroids.

Safety for use in pregnancy has not been established.

#### PRECAUTIONS:

The possibility of the occurrence of superinfections with mycotic organisms or other pathogens should be kept in mind when using this compound, as with other antibiotics. If superinfection occurs during therapy, appropriate measures should be taken.

As with any potent drug, periodic assessment of organ system function, including renal, hepatic, and hematopoietic, should be made during long-term therapy.

#### ADVERSE REACTIONS:

Gastrointestinal disturbances, such as nausea, epigastric discomfort, flatulence, and loose

stools, have been noted by some patients. Mildly elevated SGOT levels (less than 100 units) have been reported in a few patients for whom pretherapeutic determinations were not made. Skin rashes and allergic symptoms, including wheezing and sneezing, have occasionally been encountered. Eosinophilia, with or without overt allergic manifestations, has been noted in some patients during therapy.

#### USUAL DOSAGE:

Adults: 250 mg. q 6h.

Children: 50 mg./Kg./day in equally divided doses q 6h. Children weighing more than 20 Kg should be given the adult dose. Administer on empty stomach for maximum absorption.

**N.B.: INFECTIONS CAUSED BY GROUP A BETA-HEMOLYTIC STREPTOCOCCI SHOULD BE TREATED FOR AT LEAST 10 DAYS TO HELP PREVENT THE OCCURRENCE OF ACUTE RHEUMATIC FEVER OR ACUTE GLOMERULONEPHRITIS.**

#### SUPPLIED:

Capsules—250 mg. in bottles of 100. 500 mg. in bottles of 100.  
Oral Solution—125 mg./5 ml. in 100 ml. and 200 ml. bottles

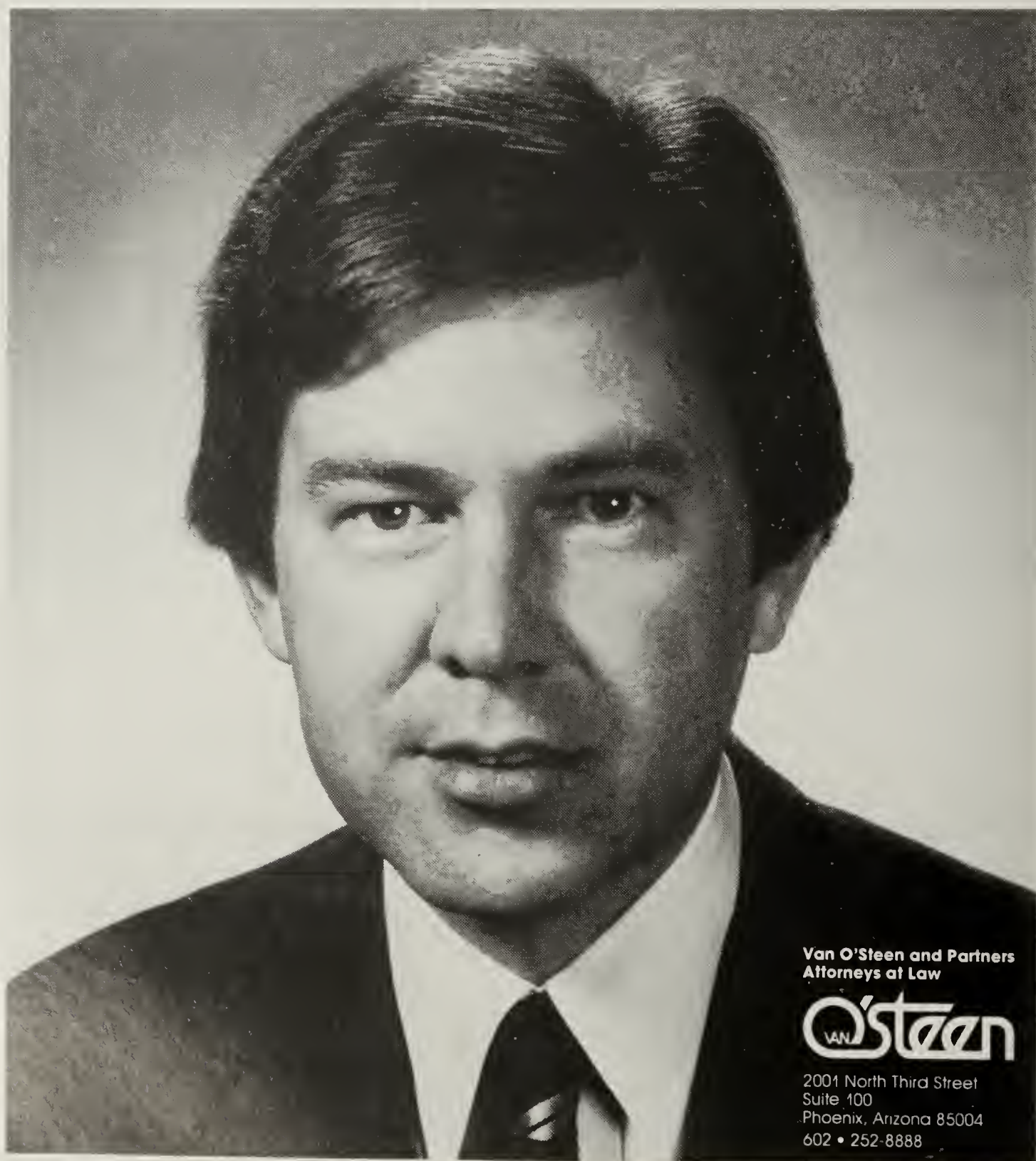
**BRISTOL®**

Bristol Laboratories  
Division of Bristol-Myers Company  
Syracuse, New York 13201

Copyright © 1981, Bristol Laboratories

# What doctors should know. . . about lawyers

A physician's license to practice medicine is his or her most valuable asset. In Arizona, it can be suspended or permanently revoked by the Board of Medical Examiners based on the complaint of a single disgruntled patient. We strongly recommend that you discuss all Board inquiries with a lawyer who handles Administrative Law matters.



Van O'Steen and Partners  
Attorneys at Law

**Van O'Steen**

2001 North Third Street  
Suite 100  
Phoenix, Arizona 85004  
602 • 252-8888





# Our goal is to help you reach yours.

From medical school through retirement, your financial needs are continually changing. And your time to look after those needs is limited.

That's why Valley Bank has Medical Banking Specialists—trained in the financial needs of medical professionals.

Talk to us about credit and our many other services. They're outlined in our new

brochure: "Financial Services for Medical Professionals."

For more information about these services, call Jay Crawford, Medical Banking Director in Phoenix, at 261-5045. In Mesa, call Maria Evans, Medical Banking Specialist, at 261-1890. And in Tucson, call Brenda Koedyker, Assistant Vice President, at 792-7531.

## We go out of our way for you. Valley National Bank



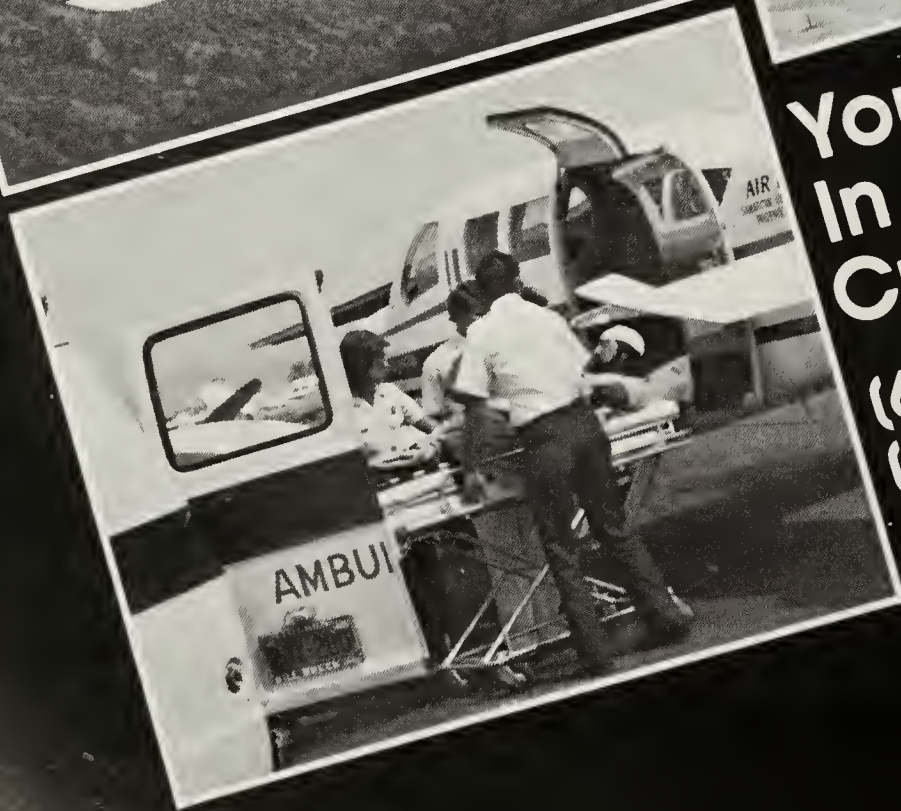
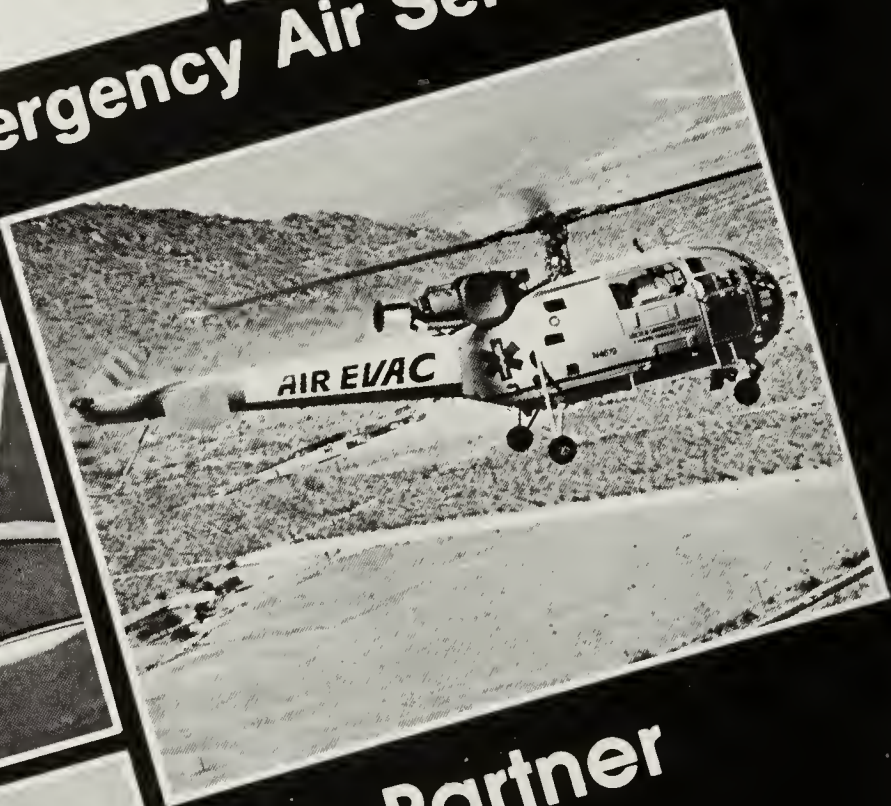
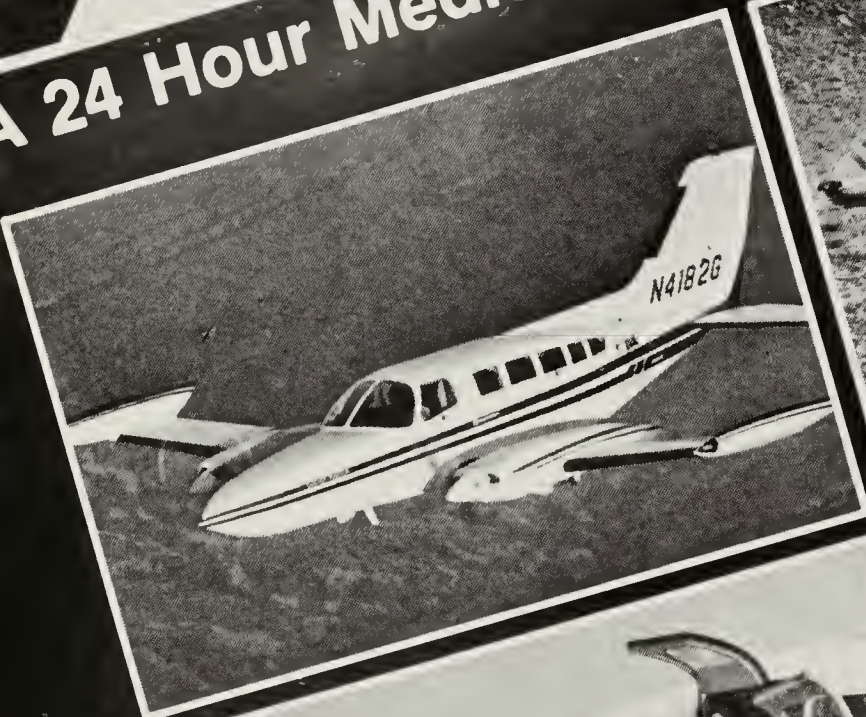
Member FDIC Equal Opportunity Lender



Lincoln Samaritan

# AIR EVAC

24 Hour Medical Emergency Air Service



**Your Partner  
In  
Critical Care**  
**(602) A-I-R-E-V-A-C**  
**(247-3822)**

**Our name is our number**  
**Serving Arizona and the Nation**  
**Since 1969**



# IF YOUR SCENE IS

copying • folding • inserting • sealing • stamping • mailing • filing

## we can put you in a more profitable picture

SAVE TIME, EFFORT, AND MONEY THAT YOU CAN PUT TO  
A MORE EFFICIENT USE BY BILLING PATIENTS A NEW INEXPENSIVE WAY WITH  
MICROFILM.

### Here's how you benefit • • • •

**FAST**  
Takes 15 minutes a month to do you statements  
(Based on 400 statements per month.)

**EFFICIENT**  
We make exact copies of your current ledgers.

**INEXPENSIVE**  
Cost is 38¢ per copy; signed sealed and delivered.

**FLEXIBLE**  
We come to your office at your convenience.

**IN-HOUSE**  
Your records never leave your office.

**NO SET UP COST OR INVENTORY**  
No equipment to purchase and no inventory of  
envelopes, statements, stamps, etc.

**SECURITY INSURANCE**  
All microfilm of your accounts receivable stored with  
us for three months.

**NO SERVICE CONTRACT**  
We'll work for you 30 days or 30 years. . .whatever's  
convenient for you.

### • • • • Let's compare costs

This is reprint of National Billing Statistics and costs.  
Which do you use?

| AVERAGE COST                                                                                                                       | YOUR COST   |
|------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Postage .....                                                                                                                      | 18 _____    |
| Printed Window Envelope .....                                                                                                      | 03 _____    |
| Printed Payment Envelope .....                                                                                                     | 03 _____    |
| Statement Copy .....                                                                                                               | 05 _____    |
| Accounts Receivable Insurance ..                                                                                                   | 01 _____    |
| Waste .....                                                                                                                        | 01 _____    |
| LABOR (includes copying, folding,<br>inserting, sealing,<br>stamping, mailing, agings,<br>ordering and handling<br>supplies) ..... | 14 _____    |
| Copy Machine Costs.....                                                                                                            | 03 _____    |
|                                                                                                                                    | _____       |
|                                                                                                                                    | _____       |
| TOTAL                                                                                                                              | .48 _____ ¢ |

**38¢ IS YOUR TOTAL COST FOR A MICROFILMED STATEMENT SENT TO  
YOUR PATIENT. THIS INCLUDES OUT-GOING ENVELOPE, RETURN  
ENVELOPE, STATEMENT AND FILMING FOR ONLY 20¢ AND 18¢ FOR  
POSTAGE.**

**SAVE TODAY BY CALLING  
ARIZONA MICRO-PRINT & STATEMENT SERVICE**

401 East Indian School Road, Suite 204, Phoenix, Arizona 85012  
Telephone 263-5796



## CHANCES ARE, THE CHECK WILL COME BACK FASTER IF YOU FILE A CLAIM FOR THEM.

Filing an insurance claim is really very simple. But most patients seldom file one. So their chances of making an error, or putting off mailing it, are greater. Those errors and delays make everybody unhappy. But together we can avoid that.

Blue Cross and Blue Shield will soon be unveiling some "high-tech" claims-processing equipment, right here in Arizona. It will cut the turnaround time on an accurate claim for covered services, in *half!*

But we can't set the wheels in motion until an accurate claim is received, so we're asking your help.

Simply ask for the ID card, fill out the AMA uniform claim form, and see that it's mailed.

What's in it for you? Fast, accurate payment for the covered claims you submit in behalf of Blue Cross and Blue Shield patients. In a time of high interest, that's like money in the bank.

But there's a better reason: That simple step will relieve a lot of your patient's anxiety over "past due" notices from you.



**Blue Cross®  
Blue Shield®**  
of Arizona

**"MAKING IT EASIER"**



**AMA**  
ARIZONA MEDICAL ASSOCIATION

NAME \_\_\_\_\_ DATE \_\_\_\_\_  
ADDRESS \_\_\_\_\_

**Dx: INFLATION**

**Rx:** Meet the challenge of inflation. Join the WPPA and by-pass the middleman. Order directly from suppliers and save time and money.

**PRACTICING MEDICINE  
IS A FULL-TIME JOB...**

**SO IS  
SAVING  
MONEY!**

Join the Western Physicians Purchasing Association and you'll have more time to do the job you were trained for. While you take care of patients, the WPPA will search out the best in professional equipment and supplies and make them available to you at savings up to 28%. No need to shop around. Just consult the WPPA catalog, contact the vendor directly, and discuss your specific needs. You'll be pleased with the wide choice of supplies that are available and surprised at the amount of money you can save.

The WPPA inventory includes more than 16,000 items, all of them top-quality brand names from reputable manufacturers and suppliers.

- ☐ Medical/surgical and laboratory supply items
- ☐ X-Ray equipment, film, solution, accessories and service
- ☐ Fine instruments for every field of modern surgery
- ☐ Orthopedic soft goods and emergency room supplies
- ☐ Office furniture
- ☐ Automobile purchase and lease plan
- ☐ Aircraft and aircraft equipment and accessories
- ☐ Car rental programs
- ☐ Discounts at leading hotels and motels
- ☐ Medical equipment leasing
- ☐ Computerized medical accounting system
- ☐ Comprehensive laboratory services

**For further information and a WPPA catalog, call (602) 774-8692**  
**WESTERN PHYSICIANS PURCHASING ASSOCIATION**

**WPPA**

Another Membership Benefit of the  
Arizona Medical Association

**AMA**



Carl T. Kirchmaier, M.D.  
Medical Director

In the equitable classification of risks for life and health insurance applicants, a company's professional is their Medical Director. He is the link between the home office underwriter and the applicant's own physician. It is his confidential evaluation of health information furnished by you which helps to determine the proper issue classification, so that all policy-owners pay their fair share.

We at HBA Life have prided ourselves on our close rapport with the Arizona Medical profession since our founding in 1944.

Dr. Kirchmaier is an important part of that relationship.





## We've got the prescription for your communications needs.

Mountain Bell has trained a team of specialists in the medical profession. Because doctors and medical professionals have unique communications needs. And their own set of problems.

Our medical specialists understand those problems. They study your daily patient load, staff requirements, and information management areas. They help implement mechanization through time-sharing of computer terminals. And design voice and data communications systems tailored to fit a private practice, or the collective needs of clinics and group practices.

One of the systems we've developed for you is the Horizon® communications system. In addition to the advanced calling features available on larger, more costly PBX equipment, the Horizon system gives you Dial Dictation and Loudspeaker Paging access. Plus Intercom and Speakerphone capabilities. So you minimize time spent by support personnel on placing and receiving phone calls. While speeding exchange of information.

The Horizon communications system is just one example of how our team members can meet the communications needs of your practice. But they can tell you more. Because they've taken the time to learn the medical profession. And they're backed by all the resources of the Bell System.

Let the Mountain Bell specialists in the medical profession give you the remedy to your communications needs.

Call toll-free 1-800-525-2323 (in Colorado, call 1-800-332-2351). Mountain Bell.

\* Registered Trademark of AT&T Company

**The knowledge business**





# Camelback Hospitals' ANOREXIA NERVOSA Treatment Program



Camelback Hospitals' therapy program has been especially designed by the hospital staff for the treatment of anorexia nervosa. Features of this unique program, in which referring physicians are invited to participate, include:

- Personal effectiveness training, which teaches the anorexic how to express ideas, thought and feelings... how to identify and manage stress.

- Art-Music-Movement therapies to help reconcile emotional conflicts and reduce the anorexic's distorted body image.

- Psychodrama, which helps the anorexic develop effective ways to communicate and gain a greater sense of emotional independence. Families are encouraged to participate in the psychodrama experience.

Hospitalization can be extremely helpful in breaking the binge eating-vomiting cycle that affect many anorexics. Camelback Hospitals offer a highly specialized approach to diet and nutrition, along with the services of a professional medical house staff...on call 24 hours a day.

## Other Services

In addition to the treatment program for anorexia nervosa, Camelback Hospitals offer

- Alcohol and Drug Abuse Programs
- Day Treatment Programs
- Young Adult Treatment Programs
- Adolescent Treatment Programs (patients 13 to 17 years of age participate in both the Adolescent and Anorexic Programs)
- Acute psychiatric care for adults
- Geriatric Treatment Program
- Family, group and individual psychotherapy
- Occupational and recreational therapy — Psychodrama
- Social Services

## About the Hospitals

Camelback Hospitals, located in Phoenix and Scottsdale, Arizona, provide intensive, multidisciplinary diagnostic and short term treatment designed to alleviate psychiatric symptoms, increase self-awareness and build psychosocial competence.

Special emphasis is placed on sharing with each patient a more complete understanding of himself, so that he can participate in his therapy with insight and intelligence.

An open medical staff of more than 60 psychiatrists, psychologists, psychiatric nurses, social workers and activity therapists provide 24 hour care.

Camelback Hospitals and Camelback Mental Health Center are fully accredited and licensed by the State of Arizona.



**Camelback Hospitals**

5055 North 34th Street  
Phoenix, Arizona 85018  
(602) 955-6200

7575 East Earll Drive  
Scottsdale, Arizona 85251  
(602) 941-1108



Billing is the  
Cornerstone of  
every successful  
private practice . . .



*"We put it in place."*

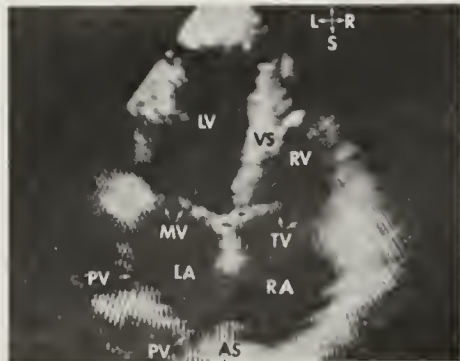


**The Anesthesia Office, Inc.**

Main Office: Post Office Box 39429, Phoenix, Arizona 85069 (602) 242-1908

# DIAGNOSTIC ULTRASOUND

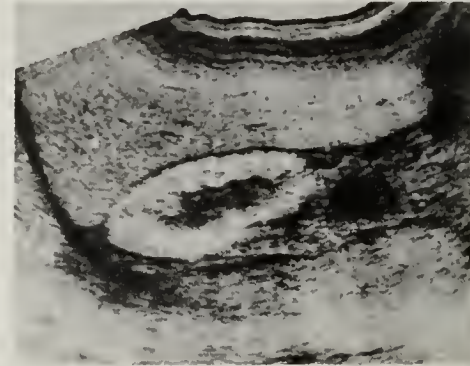
IN A PLEASANT ENVIRONMENT  
WITH THE ECONOMIC CONVENIENCE  
OF A PRIVATE OFFICE



4 Chamber View of Heart



Third Trimester Pregnancy



Normal Liver and Kidney

A safe non-invasive modality for evaluation of the  
Abdomen • Gravid Uterus • Heart • Eye • Thyroid • Retroperitoneum • Vascular Tree

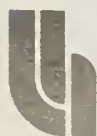
Ben-Ora Imaging, Ltd.  
Avi Ben-Ora, M.D.  
909 E. Brill Street, Suite 210  
(602) 254-4577

Ultrasound Diagnostic Services  
Avi Ben-Ora, M.D., Med. Director  
3411 N. 5th Ave., Suite 410  
(602) 279-9375

## Our trauma team . . .

The ability to mobilize people and facilities on a moment's notice is essential in treating trauma victims. The Lincoln Hospital Trauma Center has adopted a systematic team response to and established protocols for the treatment of the critically injured patient. Because the Lincoln Hospital Trauma Center is a *total medical service*, there is no need to contact a specific physician when making a referral. Simply call the Trauma Center's toll-free line.

**PHYSICIAN REFERRAL LINE**  
**1-800-352-7981**



**John C. Lincoln Hospital  
TRAUMA CENTER**  
9211 North Second Street  
Phoenix, Arizona 85020

**When time counts . . . count  
on the 24-hour services of the  
Lincoln Hospital Trauma Center!**



# the fine line between life and death



# Pioneers in Medicine For the Family

## **BOOTS PHARMACEUTICALS, INC.**

Operating in the U.S. since 1977, Boots is a world-wide leader in pharmaceutical research and manufacture. Boots has directed its efforts toward providing products useful in the practice of family medicine.

Some of our better known products are Lopurin™, Ru-Tuss® and Ru-Vert®. This advertisement highlights four other products particularly useful for the family.

**F-E-P CREME** ♦ **SU-TON**® ♦ **TWIN-K** ♦ **TWIN-K-CI**™





For the Majority of  
Steroid-Responsive Dermatoses\*  
Seen in Family Practice

## F-E-P CREME®

(Iodochlorhydroxyquin — Pramoxine HCl — Hydrocortisone)

### The 4 in 1 Corticosteroid Cream

Anti-inflammatory, antifungal, antibacterial actions, and, uniquely, a topical anesthetic for immediate relief of the itching or burning that frequently accompanies skin problems. One size (½ ounce), one strength for ease of prescription.

\*This drug has been evaluated as possibly effective for these indications  
See prescribing information on last page of this advertisement.

For the Geriatric Patient

## SU-TON®

### Liquid Tonic

A pleasant tasting prescription tonic containing iron, vitamins, minerals, an analeptic and 18% alcohol. Ideal for those who may benefit from vitamin deficiency prevention. Just one tablespoon before each meal.

Each 45 ml (3 tablespoonfuls) contains:

|                                               |        |
|-----------------------------------------------|--------|
| Pentylentetrazol. ....                        | 30 mg  |
| Niacin. ....                                  | 50 mg  |
| Vitamin B-1. ....                             | 10 mg  |
| Vitamin B-2. ....                             | 5 mg   |
| Vitamin B-6. ....                             | 1 mg   |
| Vitamin B-12. ....                            | 3 mcg  |
| Choline. ....                                 | 100 mg |
| Inositol. ....                                | 50 mg  |
| Manganese (as Manganese Sulfate). ....        | 1 mg   |
| Magnesium (as Magnesium Sulfate). ....        | 2 mg   |
| Zinc (as Zinc Sulfate). ....                  | 1 mg   |
| Iron (as Ferric Pyrophosphate, Soluble). .... | 22 mg  |
| Alcohol. ....                                 | 18%    |

See prescribing information on last page of this advertisement





## For Potassium Supplementation Improved Compliance...

# TWIN-K<sup>®</sup>

Each 15 ml supplies 20 mEq of potassium ions as a combination of potassium gluconate and potassium citrate in a sorbitol and saccharin solution

The good tasting potassium supplement

- Designed for prophylactic and therapeutic use with diuretics and adrenocorticoids.
- Pleasant taste and convenient dosage aid patient compliance.

The organic salt of potassium can be given as a liquid without producing significant gastric symptoms and without an untoward effect on the mucosa of the small intestine.<sup>1</sup>

<sup>1</sup> Beeson-McDermott, Textbook of Medicine, 15th Ed 1979, W.B. Saunders Co., Philadelphia, page 1959

## In Cases with Chloride Deficiency...

# TWIN-K-Cl<sup>™</sup>

Each 15 ml supplies 15 mEq of potassium ions and 4 mEq of chloride ions as a combination of potassium gluconate, potassium citrate, and ammonium chloride in a sorbitol and saccharin solution.

The good tasting potassium supplement with chloride

- In hypokalemic hypochloremic alkalosis, chloride ions are required. Twin-K-Cl is specially formulated to be a good tasting chloride containing potassium supplement.
- Contains no potassium chloride. Twin-K-Cl is a carefully balanced combination of organic potassium salts plus ammonium chloride.
- In hypochloremic patients, potassium should be provided as the chloride salt, or chloride ion must be made available in some other form, such as ammonium chloride or sodium chloride.<sup>1</sup>

See prescribing information on last page of this advertisement.





## F-E-P CREME

### DESCRIPTION

F-E-P Creme is a topical water soluble anti-inflammatory, anesthetic preparation intended for treatment of various inflammatory skin disorders. The drug contains the following active ingredients:

|                                   |      |
|-----------------------------------|------|
| Iodochlorhydroxyquin . . . . .    | 3.0% |
| Pramoxine Hydrochloride . . . . . | 0.5% |
| Hydrocortisone . . . . .          | 1.0% |

### INDICATIONS AND USAGE

Based on a review of this drug by the National Academy of Sciences-National Research Council and/or other information, FDA has classified the indications as follows: "Possibly" effective. Contact or atopic dermatitis; impetiginized eczema; nummular eczema; infantile eczema; endogenous chronic infectious dermatitis; stasis dermatitis; pyoderma, nuchal eczema and chronic eczematoid otitis externa, acne urticata; localized or disseminated neurodermatitis; lichen simplex chronicus; anogenital pruritus (vulvae, scroti, ani), folliculitis; bacterial dermatoses; mycotic dermatoses such as tinea (capitis, cruris corporis, pedis); moniliasis; intertrigo. Final classification of the less-than-effective indications requires further investigation.

Pramoxine Hydrochloride promptly relieves pain and itch. This compound may be used safely on the skin of those patients sensitive to the "caine" type local anesthetics.

### CONTRAINDICATIONS

Hypersensitivity to F-E-P Creme, or any of its ingredients or related compounds, lesions of the eye, tuberculosis of the skin, most viral skin lesions (including herpes simplex, vaccinia and varicella).

### WARNINGS

This product is not for ophthalmic use.

In the presence of systemic infections, appropriate antibiotics should be used.

### USE IN PREGNANCY

Topical steroids have not been reported to have an adverse effect on pregnancy. However, fetal abnormalities have been produced in pregnant laboratory animals that have been exposed to large doses of topical corticosteroids. Drugs of this class should not be used extensively during pregnancy.

### PRECAUTIONS

F-E-P Creme may be irritating to the skin in some patients. If irritation occurs discontinue therapy. Staining of clothes or hair may also occur with use of this preparation. Although systemic toxicity has not been reported with this drug, adrenal pituitary suppression is possible, especially when the drug is used extensively or kept under an occlusive dressing for a prolonged period.

Iodochlorhydroxyquin can be absorbed through the skin and interfere with thyroid function tests. Therapy with this preparation should stop at least a month before performance of these tests. The ferric chloride test for phenylketonuria (PKU) can be positive if F-E-P Creme is on the diaper or in the urine.

Prolonged use of this drug may result in an overgrowth of non-susceptible organisms requiring appropriate therapy.

### ADVERSE REACTIONS

Skin rash or hypersensitivity may occur following topical application.

The following local adverse reactions have been reported with topical corticosteroids, especially under occlusive dressings: burning, itching, irritation, dryness, folliculitis, hypertrichosis, acneiform eruptions, hypopigmentation, perioral dermatitis, allergic contact dermatitis, maceration of the skin, secondary infection, skin atrophy, striae, miliaria. Discontinue therapy if untoward reactions occur.

### DOSAGE AND ADMINISTRATION

Apply a thin layer of the drug to affected parts 3-4 times daily.

#### Note:

1. F-E-P Creme is distributed with 3.0% iodochlorhydroxyquin for use when antibacterial/antifungal activity is desired.
2. F-E-P Creme (Plain) is the regular formulation, but without iodochlorhydroxyquin.

Both of these preparations contain pramoxine hydrochloride, which has topical anesthetic properties. Pramoxine is not chemically related to benzoic acid or amide type topical anesthetics. Patients can tolerate pramoxine although they may be sensitive to other "caine" type of topical or local anesthetics.

### HOW SUPPLIED

F-E-P Creme 1/2 ounce (15 gm) tubes NDC 0524-0026-S1  
F-E-P Creme Plain 1/2 ounce (15 gm) tubes NDC 0524-0025-S1  
Federal law prohibits dispensing without a prescription.  
July 1980

## SU-TON®

### DESCRIPTION

Forty-five milliliters of SU-TON contain the following ingredients:

|                                                   |        |
|---------------------------------------------------|--------|
| Pentylene-tetrazol . . . . .                      | 30 mg  |
| Niacin . . . . .                                  | 50 mg  |
| Vitamin B-1 . . . . .                             | 10 mg  |
| Vitamin B-2 . . . . .                             | 5 mg   |
| Vitamin B-6 . . . . .                             | 1 mg   |
| Vitamin B-12 . . . . .                            | 3 mcg  |
| Choline . . . . .                                 | 100 mg |
| Inositol . . . . .                                | 50 mg  |
| Manganese (as Manganese Sulfate) . . . . .        | 1 mg   |
| Magnesium (as Magnesium Sulfate) . . . . .        | 2 mg   |
| Zinc (as Zinc Sulfate) . . . . .                  | 1 mg   |
| Iron (as Ferric Pyrophosphate, Soluble) . . . . . | 22 mg  |
| Alcohol . . . . .                                 | 18%    |

### INDICATIONS AND USAGE

SU-TON contains pentylene-tetrazol which may be helpful in the older patient as an analeptic agent when mental confusion and memory defects are present. SU-TON also contains vitamins, trace minerals, and iron, for those patients who may benefit by preventing the development of a deficiency.

### CONTRAINDICATIONS

Epilepsy, convulsive disorders or known history of sensitivity to any of the listed active ingredients.

### WARNINGS

The safety of this preparation during pregnancy and lactation has not been established. Use of this drug requires that the physician evaluate the potential benefits of the drug against any possible hazard to the mother and child.

### PRECAUTIONS

Although there are no absolute contraindications to pentylene-tetrazol, it should be used with caution in epileptic patients or those known to have a low convulsive threshold or a focal brain lesion. Caution should be exercised when treating patients with high doses of SU-TON who have heart disease. While pentylene-tetrazol does not act directly on the myocardium, the results from central vagal stimulation could cause bradycardia.

### ADVERSE REACTIONS

Pentylene-tetrazol in high doses may produce toxic symptoms typical of central nervous system stimulants, which act on the higher motor centers and the spinal cord. Convulsions resulting from this drug are spontaneous and are not induced by external stimuli. They usually last for several minutes and are followed by profound depression and respiratory paralysis. Death has been reported from the ingestion of 10 grams of pentylene-tetrazol.

### DRUG ABUSE

Drug dependence has not been reported with SU-TON.

### OVERDOSAGE

Signs and symptoms of acute overdose may be due principally from overstimulation of the central nervous system and from excessive vasodilatation with resulting autonomic nervous system imbalance. The symptoms may include the following: vomiting, agitation, tremors, hyperreflexia, sweating, confusion, hallucinations, headache, hyperpyrexia, tachycardia. Treatment consists of appropriate supportive measures. If signs and symptoms are not too severe and the patient is conscious, gastric evacuation may be accomplished by induction of emesis or gastric lavage.

Intensive care must be provided to maintain adequate circulation and respiratory exchange.

### DOSAGE AND ADMINISTRATION

One tablespoonful (15 ml) 3 times a day 20-30 minutes before meals. This drug is not for use in children under 12 years of age.

### HOW SUPPLIED

Bottles of 473 ml (16 fl oz) NDC 0524-0015-16  
Federal law prohibits dispensing without prescription.  
February 1980

## TWIN-K

### DESCRIPTION

Each 15 milliliter (one tablespoonful) supplies 20 mEq of potassium ions as a combination of potassium gluconate and potassium citrate in a sorbitol and saccharin solution.

### INDICATIONS AND USAGE

For use as oral potassium therapy in the prevention or treatment of hypokalemia which may occur secondary to diuretic or corticosteroid administration. It may be used in the treatment of cardiac arrhythmias due to digitalis intoxication.

### CONTRAINDICATIONS

Severe renal impairment with oliguria or azotemia, untreated Addison's disease, adynamia episodica hereditaria, acute dehydration, heat cramps and hyperkalemia from any cause. This product should not be used in patients receiving aldosterone antagonists or triamterene.

### WARNINGS

TWIN-K (potassium gluconate and potassium citrate) is a palatable form of oral potassium replacement. It appears that little if any potassium gluconate-citrate penetrates as far as the jejunum or ileum where enteric coated potassium chloride lesions have been noted. Excessive, undiluted doses of TWIN-K may cause a saline laxative effect.

To minimize gastrointestinal irritation, it is recommended that TWIN-K be taken with meals or diluted with water or fruit juice. A tablespoonful (15 ml) in 8 ounces of water is approximately isotonic. More than a single tablespoonful should not be taken without prior dilution.

### PRECAUTIONS

Potassium is a major intracellular cation which plays a significant role in body physiology. The serum level of potassium is normally 3.8-5.0 mEq/liter. While the serum or plasma level is a poor indicator of total body stores, a plasma or serum level below 3.5 mEq/liter is considered to be indicative of hypokalemia.

The most common cause of hypokalemia is excessive loss of potassium in the urine. However, hypokalemia can also occur with vomiting, gastric drainage and diarrhea.

Usually a potassium deficiency can be corrected by oral administration of potassium supplements. With normal kidney function, it is difficult to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution since, usually, the exact amount of the deficiency is not accurately known. Checks on the patient's clinical status and periodic EKG and/or serum potassium levels should be made. High serum potassium levels may cause death by cardiac depression, arrhythmias or arrest.

In patients with hypokalemia who also have alkalosis and a chloride deficiency (hypokalemic hypochloremic alkalosis), there will be a requirement for chloride ions. TWIN-K is not recommended for use in these patients.

### ADVERSE REACTIONS

Symptoms of potassium intoxication include paresthesias of the extremities, flaccid paralysis, listlessness, mental confusion, weakness and heaviness of the legs, fall in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of the QRS complex, changes of the ST segment and tall peaked T waves.

TWIN-K taken on an empty stomach in undiluted doses larger than 30 ml can produce gastric irritation with nausea, vomiting, diarrhea, and abdominal discomfort.

### OVERDOSAGE

The administration of oral potassium supplements to persons with normal kidney function rarely causes serious hyperkalemia. However, if the renal excretory function is impaired, potentially fatal hyperkalemia can result. It is important to note that hyperkalemia is usually asymptomatic and may be manifested only by an increased serum potassium concentration with or without EKG changes. Treatment measures include:

1. Elimination of potassium containing drugs or foods.
2. Intravenous administration of 300 to 500 ml/hr of a 10% dextrose solution containing 10-20 units of crystalline insulin per 1000 milliliters.
3. Correction of acidosis.
4. Use of exchange resins or peritoneal dialysis.

In treating hyperkalemia, it should be noted that patients stabilized on digitalis can develop digitalis toxicity when the serum potassium concentration is changed too rapidly.

### DOSAGE AND ADMINISTRATION

The usual adult dosage is one tablespoonful (15 ml) in 6-8 fluid ounces of water or fruit juice, two to four times a day. This will supply 40 to 80 mEq of potassium ions. The usual preventative dose of potassium is 20 mEq per day while therapeutic doses range from 30 mEq to 100 mEq per day. Because of the potential for gastrointestinal irritation, undiluted large single doses (30 ml or more) of TWIN-K are to be avoided.

Deviations from this schedule may be indicated, since no average total daily dose can be defined, but must be governed by close observation for clinical effects.

### HOW SUPPLIED

Bottles of 1 pint (16 fl oz)

NDC 0524-0021-16

### CAUTION

Federal law prohibits dispensing without prescription.

July 1980

## TWIN-K-CI™

### DESCRIPTION

Each 15 ml (one tablespoonful) supplies 15 mEq of potassium ions and 4 mEq of chloride ions as a combination of potassium gluconate, potassium citrate, and ammonium chloride, in a sorbitol and saccharin solution.

### INDICATIONS

For use as oral potassium therapy in the prevention or treatment of hypokalemia which may occur secondary to diuretic or corticosteroid administration. It may be used in the treatment of cardiac arrhythmias due to digitalis intoxication.

Potassium and chloride are usually the salts of choice in the treatment of hypokalemia since chloride and potassium deficiencies are likely to be associated with each other.

### CONTRAINDICATIONS

Severe renal impairment with oliguria or azotemia, untreated Addison's disease, adynamia episodica hereditaria, acute dehydration, heat cramps and hyperkalemia from any cause. This product should not be used in patients receiving aldosterone antagonists or triamterene.

### WARNINGS

TWIN-K-CI is a palatable form of oral potassium replacement. Excessive, undiluted doses of TWIN-K-CI may cause a saline laxative effect.

To minimize gastrointestinal irritation, it is recommended that TWIN-K-CI be taken with meals or diluted with water or fruit juice. A tablespoonful (15 ml) in 8 ounces of water is approximately isotonic. More than a single tablespoonful should not be taken without prior dilution.

### PRECAUTIONS

Potassium is a major intracellular cation which plays a significant role in body physiology. The serum level of potassium is normally 3.8-5.0 mEq/liter. While the serum or plasma level is a poor indicator of total body stores, a plasma or serum level below 3.5 mEq/liter is considered to be indicative of hypokalemia. The most common cause of hypokalemia is excessive loss of potassium in the urine. However, hypokalemia can also occur with vomiting, gastric drainage and diarrhea.

Usually a potassium deficiency can be corrected by oral administration of potassium supplements. With normal kidney function, it is difficult to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution since, usually, the exact amount of the deficiency is not accurately known. Checks on the patient's clinical status and periodic EKG and/or serum potassium levels should be made. High serum potassium levels may cause death by cardiac depression, arrhythmias or arrest.

In patients with hypokalemia who also have alkalosis and a chloride deficiency (hypokalemic hypochloremic alkalosis), there will be a requirement for chloride ions. TWIN-K-CI is recommended for use in these patients.

### ADVERSE REACTIONS

Symptoms of potassium intoxication include paresthesias of the extremities, flaccid paralysis, listlessness, mental confusion, weakness and heaviness of the legs, fall in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of the QRS complex, changes of the ST segment and tall peaked T waves.

TWIN-K-CI taken on an empty stomach in undiluted doses larger than 30 ml can produce gastric irritation with nausea, vomiting, diarrhea, and abdominal discomfort.

### OVERDOSAGE

The administration of oral potassium supplements to persons with normal kidney function rarely causes serious hyperkalemia. However, if the renal excretory function is impaired, potentially fatal hyperkalemia can result. It is important to note that hyperkalemia is usually asymptomatic and may be manifested only by an increased serum potassium concentration with or without EKG changes.

Treatment measures include:

1. Elimination of potassium containing drugs or foods.
2. Intravenous administration of 300 to 500 ml/hr of a 10% dextrose solution containing 10-20 units of crystalline insulin per 1000 milliliters.
3. Correction of acidosis.
4. Use of exchange resins or peritoneal dialysis.

In treating hyperkalemia, it should be noted that patients stabilized on digitalis can develop digitalis toxicity when the serum potassium concentration is changed too rapidly.

### DOSAGE AND ADMINISTRATION

The usual adult dosage is one tablespoonful (15 ml) in 6-8 fluid ounces of water or fruit juice, two to four times a day. This will supply 30 to 60 mEq of potassium ions and 8 to 16 mEq of chloride ions. The usual preventative dose of potassium is 20 mEq per day while therapeutic doses range from 30 mEq to 100 mEq per day. Because of the potential for gastrointestinal irritation, undiluted large single doses (30 ml or more) of TWIN-K-CI are to be avoided.

Deviations from this schedule may be indicated, since no average total daily dose can be defined, but must be governed by close observation for clinical effects.

HOW SUPPLIED Bottles of 1 pint (16 fl oz)

NDC 0524-0022-16

MANUFACTURED & DISTRIBUTED BY

**Boots Pharmaceuticals, Inc.**

Shreveport, Louisiana 71106

**Pioneers in Medicine For the Family**



## Introduction

This second issue of articles submitted from the University of Arizona College of Medicine deals with areas of great interest to all physicians. A number of the papers discuss the evaluation and therapy of sleep disorders. Recent developments, in this always fascinating field, have made it of ever greater clinical importance. Neurologic and psychiatric aspects of sleep disorders are stressed in articles on narcolepsy, insomnia, and psychiatrically-based sleep disturbances. Sleep-disordered breathing is discussed, both as it presents as sleep apnea syndrome in adults, and sudden infant death syndrome in the pediatric age group. In all, these articles serve as an excellent review of the present clinical thinking in relationship to clinical evaluation and management of disordered sleep. The Arizona medical community owes a debt to the Medical School both for this valuable review and for other areas of general interest included in this issue.

Bernard E. Levine, M.D.

# Sudden Infant Death Syndrome

Karen S. McCoy, M.D.

## Abstract

The sudden infant death syndrome is described in detail and discussed as a possible sleep related breathing disorder. Near miss for sudden infant death syndrome or non-fatal infantile apnea is presented as a related clinical entity. Evidence to support the relationship of SIDS, NMSIDS, periodic breathing of the premature to disordered central ventilatory control, upper airway obstruction, respiratory muscular disorganization and sleep is discussed. The differential diagnosis of infantile sleep apnea is reviewed. Methodology is outlined for study of sleep-related breathing disorders as applicable to the SIDS clinical spectrum. Indications for evaluation and for designation of infants at risk for SIDS are enumerated. Finally, the use of home monitoring and respiratory stimulants in managing the infant at risk are reviewed.

Key words: SIDS — sudden infant death syndrome; NMSIDS — near miss for sudden infant death syndrome; REM sleep — rapid eye movement sleep or active sleep; NREM — non-rapid eye movement or quiet sleep; UAO — upper airway obstruction.

## Introduction

Sudden infant death syndrome is "the sudden death of any infant or young child, in which a thorough postmortem examination fails to demonstrate an adequate cause for death."<sup>1</sup>

Reports of events compatible with SIDS have been present throughout history, thought then to be secondary to maternal suffocation (overlying), airway obstruction by enlarged thymus, infection, neglect or deliberate infanticide. Only in the past thirty years has the event become recognized as a distinct clinical entity.<sup>2</sup>

Sudden infant death syndrome (SIDS) is the largest single cause of death in infants between one week and

twelve months of life. The incidence from all studies reported is around two to three per 1000 live births.<sup>3,4</sup> At current birth rates for the United States, SIDS claims approximately 8-10,000 lives each year. The age of peak incidence is between two and four months of life.<sup>4</sup> Ninety-plus percent occur in infants between one and six months.<sup>2</sup> There is an unquestionable male predominance among SIDS victims reported in all series. Frequently parents report a mild upper respiratory infection within two weeks of the death. Other factors which appear to be associated with SIDS occurrence include lower socioeconomic standing, infants with lower birth-weight and gestational age, multiple births, maternal age less than 20, maternal smoking and drug dependence, other than first born in birth order,<sup>7</sup> illegitimacy, winter season, sibling of SIDS or near miss SIDS victim.<sup>5,6</sup>

The most striking association with SIDS is its relationship to sleep. Classically the SIDS victim is found dead in bed after or during a period when he was known or expected to be sleeping.<sup>7</sup> There is almost never a history of crying or choking noises being heard, even though approximately one-third of cases occur when an adult is present in the room with the victim (although frequently sleeping). In some cases there has been evidence of agonal motor activity such as clutching of hair or bedclothes.

Pathologic features of infants who have died of SIDS include: 1) all bacterial cultures are usually negative, 2) frothy, blood tinged mucus is present in mouth and nostrils (50%), 3) lungs are often edematous and congested, 4) intrathoracic petechiae are present, 5) blood in heart is liquid rather than clotted, 6) adrenal size is at the lower limits of normal, 7) urinary bladder is empty, 8) occasionally aspirated gastric contents are found below the cords, 9) foci of fibrinoid necrosis is found in the larynx and trachea, 10) pulmonary vascular muscle hypertrophy,<sup>8</sup> 11) right ventricular hypertrophy, 12) increased extramedullary hematopoiesis, 13) periadrenal brown fat retention, 14) degranulation of chemoreceptor cells in the carotid bodies, 15) astroglial cell proliferation in the brain stem, 16) leukomalacia of subcortical and periventricular white matter.<sup>9,10</sup> Features 10-16 are changes indicating chronic hypoxia prior to the SIDS event. This is thought to suggest chronic hypopnea and/or obstruction (intrapulmonary petechiae).

In the last ten years we have come to recognize a group of infants described as near miss for sudden infant death (NMSIDS). Such an infant is found by a parent or caretaker during a period of sleep, cyanotic, limp and apparently lifeless. Following a variety of resuscitative measures, the infant will reinstitute respiratory efforts and recover. The parents or rescue workers then bring the child to a medical facility and investigation begins. At times, however, the infant may be observed to have a short episode of apnea by mother or caretaker and recover either spontaneously or with a minimum of stimulation. Such an infant usually looks perfectly

From: University of Arizona Health Sciences Center, Department of Pediatrics, Division of Respiratory Sciences, Tucson, Arizona 85724.



normal at presentation. There are numerous reports of infants having the latter presentation, subsequently having a fatal event following a normal period of observation in hospital. It has been through study of such "near miss" infants that our appreciation of the relationship between apnea during sleep, NMSIDS, SIDS, abnormal control of ventilation and upper airway obstruction has come about.

### Terminology

The increased emphasis and interest surrounding the sleep related breathing disorders has made it mandatory that we share a standardized nomenclature. The presently accepted terminology is reviewed below.

**Apnea** is the cessation of airflow at the levels of the nostrils and mouth. The duration of pathologic apnea episodes varies with age. In adults the duration is ten seconds or more.<sup>11</sup>

Age specific standards for infants were outlined in a recent review edited by Guilleminault and Korobkin:<sup>11</sup> "no full-term control infant has been recorded with 'cessation of air exchange' during sleep longer than 15 seconds between one and six months of age. Apnea during sleep longer than 15 seconds appears to be pathological up to six months after birth. For premature infants prior to 40 weeks gestational age, the duration of normal apnea is extended to 20 seconds. Apneas during sleep longer than 10 seconds in full-term controls within the same age range (one to six months) were also considered 'rare to exceptional' during hospital surveillance and should lead to careful evaluation."

**Periodic Breathing** is defined as at least two *central apneic events* lasting less than 10 seconds within 20 seconds of each other.<sup>11</sup>

**Central Apnea** is the cessation of both airflow and respiratory movements.

**Obstructive Apnea** is the cessation of nasal and oral airflow with persistence of respiratory efforts.

**Mixed Apnea** is the cessation of airflow and an absence of respiratory efforts initially, with subsequent resumption of efforts and finally reestablishment of airflow.

**Apnea Index** is the total number of seconds of apnea divided by the total number of seconds of sleep.

### Etiology

Although numerous theories of the causation of SIDS have been proposed, the etiology remains unknown. The three types of sleep apnea 1) central, 2) obstructive, and 3) mixed, frequently occur together in the same patient. In each individual patient a particular type of apnea usually predominates. The cause of sudden death in infants may be equally as individual. We will examine the evidence to support the mechanisms proposed.

### Disordered Central Ventilatory Control

Periodic breathing, apnea, NMSIDS and SIDS are more frequent in premature infants.<sup>12</sup> The newborn infant spends a much greater percentage of total sleeptime in active sleep ( $\geq 60\%$ ) than the older child or adult (15%-20%). A transition to adult proportions of REM/NREM time occurs over the first six months of

life. The breathing pattern during REM sleep is characterized by much more irregularity and a relative loss of sensitivity to usual stimulants of respiratory drive (i.e., increasing PCO<sub>2</sub> and decreasing PO<sub>2</sub>). Gould studied term and pre-term infants at 38, 40, 44 and 52 weeks post-conception. Apnea index was highest in REM and lowest in quiet sleep, with intermediate values for indeterminate sleep.<sup>15</sup>

Subsequently normal term infants 40, 44 and 52 weeks post-conception were monitored by home pneumography.<sup>16</sup> The apnea frequency (number of apneas [ $\geq 5$  seconds] per hour) was 36% at 40 weeks, increasing to 75% at 44 weeks and 61% at 52 weeks, respectively. There was a significant correlation between apnea frequency and the longest apneic spell. No apneas of greater than 15 seconds were recorded at 40 or 44 weeks, and no episodes exceeding 11 seconds were recorded at 52 weeks. Periodic breathing has been shown to occur in 30%-95% of premature infants during sleep and decreases gradually with gestational maturity.

In a study by Kelly, comparing 32 near miss SIDS to 32 controls, the duration of periodic breathing in the near miss group was found to be significantly higher.<sup>17</sup> Greater than 1.5-2% of sleep time spent in periodic breathing was considered to place an infant at risk for SIDS. In looking at siblings of SIDS infants, similar abnormalities were found,<sup>18</sup> but were not seen in another recent study.<sup>19</sup>

### Upper Airway Obstruction

Circumstantial evidence to implicate UAO as an etiologic factor in SIDS exists: 1) intrathoracic petechiae suggests breathing against an obstruction; 2) postmortem criteria suggesting chronic pre-mortem hypoxia; 3) occasional SIDS victim found as if they had been involved in an agonal struggle; 4) the strong association of upper airway infection with SIDS. A recent report showed that a position of neck flexion was associated with an increase in apnea and bradycardia among premature infants.<sup>20</sup> REM sleep is associated with decreased activity of postural and airway muscles. Loss of activity of the intrinsic muscles of the tongue superimposed upon the diminished central respiratory drive in REM sleep is thought to contribute to UAO. The small oral airway in the infant, makes them especially vulnerable to obstruction when genioglossus muscle tone is lost during REM sleep. There is evidence for familial predisposition to abnormal genioglossus activity, which may help to explain the familial recurrence of SIDS.<sup>21</sup>

The concurrence of nasopharyngitis and prolonged sleep apnea also supports the role of UAO in SIDS. In a study of 26 NMSIDS infants on home monitors, apnea of greater than 20 seconds occurred twice as frequently during episodes of nasopharyngitis than during illness-free periods.<sup>22</sup> Normal babies with nasopharyngitis have shown a decrease in apnea during active sleep.<sup>31</sup> This may suggest that there is an unrecognized protective mechanism which is defective in SIDS infants. That laryngospasm causes SIDS has been postulated. There is

no definitive autopsy evidence to support this etiology, but this does not exclude its occurrence. Reports of respiratory arrest with gastroesophageal reflux lend credence to the plausibility of a laryngeal chemoreflex producing fatal apnea.

### **Abnormalities of Ventilatory Control in Near Miss for SIDS Infants**

Comparison of NMSIDS infants and prematures who have periodic breathing to control infants reveals increased apnea indices, respiratory pauses and decreased CO<sub>2</sub> responsiveness in the NMSIDS and periodic breather groups.<sup>23</sup>

Breathing 17% oxygen induced significant increases in the frequency and total duration of respiratory pauses in NMSIDS infants compared to controls.<sup>24</sup> Pre-term infants have a paradoxical response to hypoxia (initial hyperventilation followed by decreased respiratory rate and periodic respiration) but this changes to the adult response after about three weeks. Persistence of the abnormal response may predispose to SIDS.

### **Differential Diagnosis**

Apnea in infancy may be caused by a number of specific (often treatable, and frequently fatal if unrecognized) disease entities. The evaluation of the infant presenting with a history of apnea must include appropriate initial investigation to rule out the treatable etiologies. The causes of infantile apnea are listed below:

**Infectious** - upper respiratory infection, bronchiolitis, pneumonia (RSV especially), sepsis, CNS infection.

**Metabolic Endocrine** - hypoglycemia, hypocalcemia, electrolyte imbalance, hyper or hypomagnesemia, bicarbonate loss, acid accumulation (kidney disease or inborn errors of metabolism), hypothyroidism, hypoparathyroidism.

**Central Nervous System** - seizure disorder, trauma, CNS bleed, mass lesion, chemical depression, neonatal asphyxia.

**Congenital Malformation** - oronasofacial anomalies, TE fistula, vascular ring or sling.

**Cardiac** - arrhythmia, cyanotic congenital lesions.

**Neuromuscular** - spasticity, muscular weakness of any cause, cranial nerve abnormalities, phrenic or laryngeal nerve palsy, infant botulism.

**Gastrointestinal** - gastroesophageal reflux.

**Other** - compressive mass lesion of airway (nodes, ectopic thyroid, malignancy), history of airway or facial surgery, hypoxia from any cause.

**Idiopathic** - presumed disorder of respiratory control and/or airway patency maintenance.

### **Methods of Evaluation**

Following careful exclusion of treatable causes of apnea, we should proceed with investigation of the possibility that ventilatory control or airway obstruction underlies the disorder. Centers involved in the evaluation of infants known or suspected of having apnea employ some or all of the techniques discussed below.

Probably most widely used is conventional cardiorespiratory monitoring with heart rate and

respiratory rate alarms set for a certain interval delay (usually 10 to 20 seconds). In 1975 Stein and Shannon<sup>25</sup> reported the use of the pediatric pneumogram as an improved technique in investigating infantile apnea. The impedance pneumogram monitors up to 24 hours of cardiac and respiratory activity in a relatively non-invasive manner applicable to hospital or home setting. Cassette-like tapes are used. Based upon dual studies using simultaneous pneumography and alarm devices alarm devices detected only about 40% of the episodes demonstrated by pneumography. The main disadvantages are the inability to detect obstructive episodes unless bradycardia occurs, and false alarms.

Polysomnography is rapidly becoming the major diagnostic aid in the sleep apnea syndromes. Over the last several years a number of centers around the country have developed laboratories specializing in the study of the physiology and the pathophysiology of sleep-related disorders. This technique includes the simultaneous monitoring of:

1. Oral and/or nasal air flow are determined by a thermistor or CO<sub>2</sub> analyzer.

2. Abdominal and thoracic movement are assessed to document presence or absence of respiratory effort. The above two systems allow differentiation between obstructive and central apnea.

3. Abbreviated electroencephalogram (using the C<sub>3</sub>/A<sub>2</sub> - C<sub>4</sub>/A<sub>1</sub> leads of the international 10-20 system) for sleep staging.

4. Electrooculogram is used to ascertain presence or absence of rapid eye movements, which assists in establishing the stage of sleep.

5. Electromyogram is used on certain airway muscles (mental, submental groups) to document the level of activity of these muscles and to correlate such activity with other parameters.

6. Electrocardiogram.

7. Ear oximetry is used to document the degree of desaturation which may occur and to correlate such desaturation with other physiologic events.

Simultaneous measurement of these parameters allow sleep staging, cardiorespiratory monitoring and differentiation between upper airway obstruction and central apneic episodes. Such a laboratory is currently being designed at the Arizona Health Sciences Center.

Chemoreceptor studies which monitor the response of subjects to manipulations in the FIO<sub>2</sub> and FICO<sub>2</sub> are special techniques useful in the delineation of abnormal responses to mediators of ventilatory control.

Airway fluoroscopy in children allows noninvasive demonstration of airway obstruction.

Based upon studies and observations, the following are accepted indications for evaluation of infants suspected to be at risk for SIDS.

1. All premature infants with apnea who do not respond to simple measures.

2. All infants treated with theophylline.

3. All infants with "near-miss" episodes unexplained by other abnormalities.



4. All "near-miss" infants with now-corrected abnormalities.

5. Siblings of SIDS or "near-miss" infants at two weeks of age.

6. Follow-up for monitor discontinuance.

The following abnormalities are those suggestive of risk for SIDS:

1. Apnea  $\geq 16$  seconds, with or without IHR.

2. Periodic breathing  $>2.0\%$  of sleep time.

3. Longest episode of periodic breathing  $\geq 2$  minutes

4. Disorganized breathing accompanied by IHR in any infant.

5. IHR ( $\leq 180$  @ 0-1 mo.:  $\leq 70$  @ 1-3 mos.:  $\leq 60$  @ 3-6 mos.) for  $>10$  seconds with any respiratory pattern.

### Treatment

Home monitoring of apnea and bradycardia is currently the best method for preventing death in infants at risk for SIDS. Follow-up studies have shown NMSIDS infants monitored to have 6-7% mortality, compared to previous reports suggesting 20-100% mortality.<sup>20</sup> In this same study a reported 43% of infants required resuscitation at home, which was heralded by the monitor. Controversy exists regarding how to evaluate efficacy and how to "wean" from the monitor.

Drug therapy with a number of agents including theophylline, caffeine, belladonna, atropine, doxapram and progesterone has been tried with variable results. Theophylline has been shown to increase minute ventilation. Therapeutic blood levels are usually 8-11 ug/ml.

Monitoring or a combination of monitoring and theophylline represent the current best approach to the potential SIDS victim.

The type of monitoring system, drug levels, appropriate supportive staff, parent instruction and understanding of the psychological dependence that develops to the monitor are important elements of the successful monitoring venture.

Other modes of treatment such as tracheostomy, and diaphragmatic pacing are of little use in the usual infant at risk for SIDS.

### Summary

There is considerable evidence available to support the relationship between SIDS, NMSIDS, periodic breathing and sleep-related breathing disorders.

Infants are shown to demonstrate abnormalities of central ventilatory control, airway patency and peripheral ventilatory competency all of which are enhanced in (especially active) sleep. There is evidence that the infants who are victims of the SIDS-NMSIDS clinical spectrum show more striking sleep-related abnormalities of ventilatory control and airway obstruction than normal infants.

The methods available for evaluating sleep and respiratory physiology in infants are detailed, along with indications for evaluation and subsequent treatment. Finally discussed is the usefulness and shortcomings of treatment modalities appropriate to the infant at risk for SIDS.

### References

1. Beckwith JB: Discussion of terminology and definition of sudden infant death syndrome. In: *Proceedings of the Second International Conference on Causes of Sudden Death in Infants*. AB Bergman, JB Beckwith, CG Ray (Eds), Seattle: University of Washington Press, 1970.
2. Beckwith JB: The sudden infant death syndrome. *Curr Prb Pediatr* 3(8): 2, 1973.
3. Valdes-Dapena M: Sudden infant death syndrome: A review of the medical literature 1974-1979. *Pediatrics* 66:597, 1980.
4. Peterson DR: Sudden unexpected death in infants: Incidence in two clinically dissimilar metropolitan communities. *Am J Epidemiol* 95:95, 1972.
5. Bergman AB, Ray CG, Pomeray MA, Wahl PW, Beckwith JB: Studies of the sudden infant death syndrome in King County, Washington, III Epidemiology. *Pediatrics* 49:860, 1972.
6. Stimer R, Adelson L, Oseasohn R: Epidemiologic features of 1134 sudden unexpected infant deaths: A study in the greater Cleveland area from 1956-65. *JAMA* 209:1493, 1969.
7. Tonkin S: Sudden infant death syndrome: Hypothesis of causation. *Pediatrics* 55:650, 1975.
8. Naeye RL: Pulmonary arterial abnormalities in the sudden infant death syndrome. *N Engl J Med* 289:1167, 1973.
9. Valdes-Dapena M: Sudden unexplained infant death, 1970 through 1975: In evaluation in understanding. *Pathol Ann* 12:117, 1977.
10. Coh S, Lindenberg LB, Calisto FM, et al: Ultrastructural abnormalities of the carotid body in sudden infant death syndrome. *Pediatrics* 63:13, 1979.
11. Gulleminault C, Ariagno R, Karubkin R, et al: Mixed and obstructive sleep apnea and near miss for sudden infant death syndrome: 2) Comparison of near miss and normal control infants by age. *Pediatrics* 64:882, 1979.
12. Fenner A, Schalk U, Hoeicke H et al: Periodic breathing in premature and neonatal babies: Incidence, breathing pattern, respiratory gas tensions, response to changes in the composition of ambient air. *Pediatr Res* 7:174, 1973.
13. Ruffwarg HP, Muzio IN, Dement WC: Ontogenetic development of the humor sleep dream cycle. *Science* 152:604, 1966.
14. Parmelee AH, Wenner WH, Akeyama Y, et al: Sleep states in premature infants. *Dev Med Child Neurol* 9:70, 1967.
15. Gould JB, Lee AF, James O, et al: The sleep state characteristics of apnea during infancy. *Pediatrics* 59:182, 1977.
16. Stein IM, White A, Kennedy JL, et al: Apnea recordings of healthy infants at 40, 44 and 52 weeks post conception. *Pediatrics* 63:724, 1979.
17. Kelly DH, Shannon DC: Periodic breathing in infants with near-miss sudden infant death syndrome. *Pediatrics* 63:355, 1979.
18. Kelley DH, Walker AM, Cohen L, et al: Periodic breathing in sibling of sudden infant death syndrome victims. *Pediatrics* 66:515, 1980.
19. Hippenbrouwers T, Hodgman JE, McGinty D, et al: Sudden infant death syndrome: Sleep apnea and respiration in subsequent siblings. *Pediatrics* 66:205, 1980.
20. Tack BT, Stark AR: Spontaneous neck flexion and airway obstruction during apnea spells in preterm infants. *J Pediatr* 94:275, 1979.
21. Strohl KP, Saunders NA, Feldman NT, et al: Obstructive sleep apnea family members. *N Engl J Med* 299:969, 1978.
22. Steinschneider A: Nasopharyngitis and prolonged sleep apnea. *Pediatrics* 56:967, 1975.
23. Shannon DC, Kelley DH, O'Connell K: Abnormal regulation of ventilation in infants at risk for sudden infant death syndrome. *N Engl J Med* 297:747, 1977.
24. Brady JP, Ariagno RL, Watts JL, et al: Apnea hypoxemia and aborted sudden infant death syndrome. *Pediatrics* 62:686, 1978.
25. Stein I, Shannon DC: The pediatric pneumogram: A new method for detecting and quantitating apnea in infants. *Pediatrics* 55:599, 1975.
26. Kelly DH, Shannon DC, O'Connell K: Care of infants with near miss sudden infant death syndrome. *Pediatrics* 61:511-514, 1978.

# Transient Erythroblastopenia of Childhood

James J. Corrigan, Jr., M.D.

## Introduction

Transient erythroblastopenia of childhood (TEC), a form of pure red cell aplasia, can easily be confused with other types of hypoplastic anemias.<sup>1-3</sup> Distinguishing characteristics of TEC are its sudden appearance in previously normal children, a self limiting course, and excellent prognosis. In general it does not demand the indepth investigation that may be necessary for the other forms of red cells aplasia. In the last three years seven pediatrics cases of moderate to severe acquired red cell aplasia have been seen at the University Hospital, six of whom had TEC. The purpose of this article is to report these cases in order to illustrate the clinical picture of TEC and emphasize the benign, self limiting nature of the condition.

## Case Histories

### Case 1.

A seven month old female was noted to be pale by her physician at the time of a routine visit. There was no known prior illness; the pregnancy and delivery were normal. There was no prior history of anemia and no family history of anemia. Hemoglobin at the time was 8.0 Gms/dl. She was begun on oral iron but the anemia worsened; three weeks later the hemoglobin was 5.8 Gms/dl with 0.1% reticulocytes. Except for pallor and irritability the physical exam was noted to be normal. The data are shown on Table 1. After receiving one transfusion of packed red blood cells she symptomatically improved. One month later the hemoglobin was 11.6 Gms/dl, and two months later it was 13.9 Gms/dl with a reticulocyte count of 1.2%.

### Case 2.

An eighteen month old girl was noted to be pale by her physician on a follow-up visit for an upper respiratory infection. There was no known prior anemia, or family history of anemia. Physical exam was normal except for the pallor. Laboratory findings are shown on the table. The bone marrow showed marked RBC hypoplasia. Within seven days the hemoglobin was 7.6 Gms/dl with 9% reticulocytes, and at nine weeks 12.9 Gms/dl and 1.7% respectively.

### Case 3.

A one year old male had a URI one week prior to the onset of pallor. Anemia was noted and was unresponsive to iron, for three additional weeks. There was no prior history of anemia, and no family history of anemia. The data are shown on the table. In the fourth week the reticulocytes count was 3.8% and within one month the hemoglobin was 11.0 Gms/dl with 1.2% reticulocytes. One year later he remains well.

### Case 4.

A one year old adopted female developed diarrhea. She became pale and had a normal exam. The bone marrow revealed marked decrease in RBC series; the serum iron and iron binding capacity were normal. Two weeks later the hemoglobin had risen to 8.0 Gms/dl, reticulocyte count 29.7%. One month later the hemoglobin was 13.6, and the retic count 3.8%. On follow-up two years later she was well.

### Case 5.

An eleven month old female was noted to be pale. She had had a URI two weeks before the pallor was noted. Physical examination was normal except for the pallor. Within one week she spontaneously increased the hemoglobin concentration with a reticulocytosis. One month later the hemoglobin was 12.3 Gms/dl, and the reticulocyte count was 0.7%. She continues to be well three years later.

### Case 6.

A two and a-half-year old girl had a "flu-like" illness with associated fever, irritability and dysuria. She was also noted to be pale by her parents. At the time of admission she was afebrile, and, in general, thought to be getting better. She had no past history of anemia, was not exposed to toxic drugs or chemicals, and there was no family history of anemia. Physical examination on admission was normal except for the pallor. There was no jaundice or hepatosplenomegaly. The initial hematological data are shown on Table 1. Further studies did not reveal the cause of the dysuria. Two weeks later the hemoglobin was 11.5 Gms/dl with a retic count of 1.4%. One year later the hemoglobin was 12.7 Gms/dl, reticulocyte count 1.4% Osmotic fragility tests on patient and family member was normal.

### Case 7.

A fifteen month old girl was admitted with fever, rhinorrhea, seizure, lethargy, otitis media, splenomegaly, and cervical adenopathy. There was no associated rash or hepatomegaly. She was noted to be pale by the parents at the onset of the illness. There was no past history or family history of anemia. The hematologic data are shown on Table 1. In addition, serum iron and iron binding capacity was normal. The WBC differential revealed 65% lymphocytes, the majority being atypical forms. Bone marrow aspirate revealed marked reduction in RBC series (at all stages), normal white blood series, increased megakaryocytes and no abnormal cells. Cerebrospinal fluid analysis was normal. She was given one transfusion of packed red

From: University of Arizona Health Sciences Center, Department of Pediatrics, Section of Pediatric Hematology-Oncology. Dr. Corrigan is Professor of Pediatrics and Chief, Section of Pediatric Hematology-Oncology, Tucson, Arizona 85724



**Table 1**  
**Hematologic Data**

| Case Number                        | 1       | 2       | 3       | 4       | 5      | 6       | 7            |
|------------------------------------|---------|---------|---------|---------|--------|---------|--------------|
| Hemoglobin (Gms/dl)                | 5.8     | 5.7     | 6.9     | 5.6     | 6.7    | 7.5     | 6.0          |
| Hematocrit (%)                     | 15.6    | 17.2    | 20      | 16      | 19     | 23.8    | 19           |
| MCV ( $\mu^3$ )                    | 81      | 78      | 81      | 79      | 78     | 90      | 82           |
| Reticulocyte Count (%)             | 0.1     | 0       | 0.2     | 0       | 0.0    | 12      | 0            |
| WBC (/mm <sup>3</sup> )            | 9,700   | 10,000  | 8,100   | 7,000   | 11,000 | 11,9000 | 18,300       |
| Platelet Count (/mm <sup>3</sup> ) | 535,000 | 900,000 | 400,000 | 500,000 | N      | 394,000 | 14,000       |
| Bilirubin (mg/dl)                  | ND      | 0.2     | 0.3     | ND      | ND     | 0.5     | 0.4          |
| Coombs Test                        | ND      | Neg     | Neg     | Neg     | Neg    | Neg     | Neg          |
| Bone Marrow                        | ND      | ND      | 1RBC    | 1RBC    | ND     | ND      | 1RBC<br>1MKC |
| Blood Smear                        |         |         |         |         |        |         |              |
| Polychromasia                      | 0       | 0       | 0       | 0       | 0      | +       | 0            |
| Spherocytes                        | 0       | +       | +       | 0       | +      | +       | +            |
| Normal RBCs                        | +       | +       | +       | +       | +      | +       | +            |
| Osmotic Fragility*                 | ND      | ND      | WNL     | ND      | WNL    | WNL     | WNL          |

\*Performed at the time of recovery.

ND = Not Done    RBC = Red Blood Cell    MKC = Megakaryocytes    WNL = Within Normal Limits

blood cells. Ten days later the reticulocyte count was 14%, and one month later the hemoglobin was 12.7 Gms/dl with a normal reticulocyte count. At that time her physical exam was normal. The thrombocytopenia had resolved at ten days. Final diagnosis was infectious mononucleosis-like syndrome; no specific viral agent was found.

### Discussion

These seven cases have in common the acute onset of a moderate to severe reticulocytopenic anemia in children who were hematologically normal prior to its onset. In this series the patients were less than three years old, and the disorder had a self limiting course. The time from the documentation of the anemia until the first rise in the reticulocyte count ranged from ten days to two months with the majority being between two to four weeks. Two patients were severe enough to require one red cell transfusion for symptomatic relief. Although case six presented with a raised reticulocyte count it was felt that the history and subsequent course was similar to the others and that we had observed her at the time she was remitting.

Pure red blood cell aplasia has multiple etiologies.<sup>3-5</sup> The acquired types have been associated with drugs, toxins, immune mediated diseases, tumors, renal failure, infections and malnutrition in patients without a hemolytic anemia, and with the aplastic crisis of chronic hemolytic anemias (such as spherocytosis and sickle cell anemia). In addition, there is a congenital form called Diamond-Blackfan Syndrome or congenital hypoplastic anemia (CHA).<sup>4,6</sup>

The entity presented here, transient erythroblastopenia of childhood (TEC), is an acquired form of hypoplastic anemia of unknown etiology.<sup>1,2,6,7</sup> Of those reported the majority have had a prior infectious process, have been seen at all pediatric age groups with

90% being less than four years old, and all have had self limiting courses. The white blood cell and platelet counts are unaffected, while the bone marrow examination revealed severe depletion of the RBC series with the remainder of the marrow being normal. Five of our cases showed spherocytes suggesting that they may have been in an aplastic phase of congenital spherocytosis. However, none had a family history of spherocytosis and at the time of recovery the spherocytes disappeared; and four had normal osmotic fragility tests. These results are not consistent with congenital spherocytosis.

The cause of the temporary cessation of red cell production is not known. It apparently is not due to a lack of erythropoietin.<sup>2,7</sup> Recently, Koenig and associates presented data in four cases that strongly suggested that the anemia of TEC was due to immune suppression of bone marrow erythroid colony development by a factor (?antibody) found in their sera during the illness.<sup>8</sup> It is likely that hematologically normal individuals experience temporary RBC suppression during or following viral illness;<sup>9</sup> but only those who become pale or symptomatic come to medical attention.

Once thought of, the diagnosis is not difficult to make. These patients have the following characteristics: they are hematologically normal prior to the event, there is no family history of hemolytic or hypoplastic anemias, the physical exams are normal except for pallor, the anemia is normochromic and normocytic with associated severe reticulocytopenia, the white blood cell and platelet counts are normal (unless influenced by the infectious agent, see Case 7), and the course is self limiting requiring only supportive care. Further hematologic evaluation in the classic setting is unnecessary. Thus, bone marrow examination, serum iron, hemoglobin electrophoresis, and so forth, are rarely needed.

The treatment of TEC is supportive in nature. Although corticosteroids have been used the general feeling is that they do not hasten remission and can add difficulty in the diagnosis. Packed RBC transfusion can be used for symptomatic patients.

#### Acknowledgement

The author thanks the following physicians for referring the patients in this study: Drs. A. Callie, S. Kemberling, J. Rothschild, C. Johnston, C. Bryant, and J. Grose.

#### References

1. Wranne L: Transient erythroblastopenia in infancy and childhood. *Scand J Haemat* 7:76-81, 1970.
2. Al-Rashid RA: Idiopathic transient erythroblastopenia of childhood. *Amer J Ped Hem/Onc* 1:363-367, 1979.
3. Alter BP, Nathan DG: Red cell aplasia in children. *Arch Dis childh* 54:263-267, 1979.
4. Wang WC, Mentzer WC: Differentiation of transient erythroblastopenia of childhood from congenital hypoplastic anemia. *J Pediat* 88:784-789, 1976.
5. Kho LK Odang O, Thajeb S, Markum AH: Erythroblastopenia (pure red cell aplasia) in childhood in Djakarta. *Blood* 19:168-180, 1962.
6. Diamond LK, Wang WC, Alter BP: Congenital hypoplastic anemia. *Adv Pediat* 22:349-378, 1976.
7. Lovric VA: Anaemia and temporary erythroblastopenia in Children. *Aust Ann Med* 1:34-39, 1970.
8. Koenig HM, Lightsey AL, Nelson DP, Diamond LK: Immune suppression of erythropoiesis in transient erythroblastopenia of childhood. *Blood* 54:742-746, 1979.
9. Gasser C: Aplasia of erythropoiesis. *Pediat Clin N Amer* 4:445-468, 1957.

# Advances in Diagnosis and Clinical Laboratory Testing in Immunologic Disorders

Mary Jane Hicks, M.D.  
James F. Jones, M.D.

#### Introduction

Clinical and research laboratories perform a diverse array of tests which are often collectively included within the general designation of immunologic procedures. Often included in this group are procedures which employ *in vitro* immunologic reactions (radioimmunoassay, enzyme linked immunoassay, agglutination) regardless of what substance is being measured (hormones, drugs). However, the subject of this review will be restricted to the immune system *per se*, including: 1) a review of basic immunology, or host defense mechanisms, 2) the clinical manifestations of abnormal immune function, and 3) a discussion of recently developed tests used to evaluate the integrity and proper functioning of these mechanisms.

#### Host Defense Mechanisms

The concept of immunity usually implies resistance to deleterious effects of infectious organisms, e.g., disease, and operates at four levels: 1) skin and mucous membrane barriers, 2) nonspecific or "innate immunity," 3) specific or acquired immunity, and 4) modulation or control (Table 1). We will be concerned primarily with the latter three of these host defense mechanisms.

#### Nonspecific Immunity

Following a breach in the protective barrier of the skin or mucous membranes the nonspecific immune system forms the first line of defense against microbial invasion. This system involves both phagocytic cells and multiple humoral mechanisms. The cells include circulating polymorphonuclear leukocytes (PMNs), monocytes and eosinophils as well as fixed macrophages in the liver, spleen, lymph nodes, lungs, bone marrow, kidney and select synovial cells. The functions of phagocytic cells include nonrandom migration (chemotaxis), engulfment, intracellular killing of microorganisms, and digestion of foreign material. Killing is accomplished by production of toxic oxygen radicals, hydrogen peroxide, cationic proteins and alterations in pH, and digestion is accomplished by lysosomal enzyme action on phagocytized material.

Humoral factors operative in nonspecific immunity include: the interrelated complement (classical and

---

From: University of Arizona Health Science Center, Departments of Pathology and Pediatrics, Tucson, Arizona 85724.



**Table 1**  
**Host Defense Mechanisms**

| Nonspecific                        | Specific                                                                                                                | Modulation                               |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| Phagocytosis                       | B Lymphocytes and antibodies                                                                                            | Thymus: cell contact and thymic hormones |
| Polymorphonuclear leukocyte        | T Lymphocytes                                                                                                           | Bone Marrow                              |
| macrophages: fixed and circulating | cytotoxic cells<br>lymphokines <sup>1</sup>                                                                             | Fetal Liver                              |
| complement                         | macrophage inhibitory factor                                                                                            | T Suppressor cells                       |
| inflammation                       | macrophage activating factor<br>chemotactic factors<br>mitogenic factors<br>skin reactive factor<br>lymphotoxin<br>etc. | T Helper cells<br><br>Macrophages        |

*Over 50 different lymphokines have been described.<sup>1</sup>*

alternate pathways), coagulation, fibrinolysis, and kinin systems, muramidase (which hydrolyzes bacterial cell wall components), lactoferrin and transferrin (which chelate free iron needed for microbial reproduction), and interferons (produced locally in response to viral infection and serve to inhibit further virus replication). When Hageman factor is activated, in addition to initiating the coagulation cascade, the kinin, complement and fibrinolysis systems are also triggered. These systems serve to contain the foreign invaders by inducing directly or indirectly, vasodilatation, increased vascular permeability and chemotactic stimuli, the hallmarks of an acute inflammatory response. Because nonspecific immune mechanisms are not totally effective, higher vertebrates have developed the specific immune system which serves to augment the nonspecific immune functions and confer long lasting immunity against repeat infection.

#### **Specific Immunity**

Specific immunity also consists of cellular and humoral components. The cells involved are lymphocytes, and immunoglobulins have traditionally been considered the principle humoral component. However, the situation is more complex than this. Both the humoral and cellular arms of the immune response are mediated by cells, e.g., B and T lymphocytes, respectively, and are associated with humoral components, e.g., immunoglobulins and lymphokines.<sup>1</sup> (Table 1). Each form of specific immunity is characterized by an interaction between the lymphocyte (which possesses a specific antigen receptor) and the specific antigen which may or may not require prior processing by macrophages after nonspecific phagocytosis by these latter cells.<sup>2</sup> This interaction triggers "activation" of humoral and/or cellular immune system(s) leading to cell division, clonal expansion and

production of specific antibody by plasma cells (the maturation product of B cells) and lymphokines by T cells.<sup>1</sup> Cytotoxic T cells may also be induced. Once each of these cell types responds to a given antigen, long lived memory cells are usually generated which are capable of further cell division and more rapid immunologic response upon re-exposure to the antigen in question. This is the mechanism whereby long term immunity to reinfection is conferred upon the host.

The specific humoral immune system serves to protect the host from invasion by extracellular, pyogenic microorganisms and from the deleterious effects of toxins. Specific antibodies neutralize toxins, agglutinate microorganisms or coat (opsonize) bacteria leading to enhanced phagocytosis. An antigen-antibody reaction may also activate the complement system, which exerts strong chemotactic stimuli, and induces endogenous vasoactive amine release, resulting in enhancement of an acute inflammatory reaction, identical to its function in the nonspecific immune system. In fact, specific antibody, PMNs, and complement function together to rid the host of pyogenic, extracellular pathogens.

The cellular immune system functions primarily to rid the host of intracellular parasites, e.g., fungi, mycobacteria, viruses and certain bacteria. This is accomplished by direct killing of the infected cells by specifically activated cytotoxic T cells or nonspecifically by macrophages which are vital participants in the chronic inflammatory reaction mediated by lymphokines (Table 1).

Besides mature T and B lymphocytes, there are "null cells." In fact, these cells represent a heterogeneous group of "third population" lymphoid cells probably including immature pre-T and pre-B cells, "natural killer" (NK) cells and "killer" (K) cells. NK cells are reportedly involved in natural resistance against

microbial pathogens, tumor cells and foreign cells.<sup>3</sup> K cells participate in antibody dependent cell mediated cytotoxicity (ADCC).<sup>4</sup> Target cell killing by K cells (ADCC) requires the participation of specific antibody (which coats the target cell) while specific antibody apparently does not participate in NK cell function. It is apparent from the above description that within the lymphoid system itself, there may be some nonspecific (NK) immune function as well as specialized co-operation between specific humoral immunity and nonspecific "cellular" immune function (ADCC).

Inflammation is the final common pathway by which the nonspecific and specific host defense mechanisms effect removal of foreign material and microorganisms. Activation of inflammation normally leads to variable degrees of host tissue damage and subsequent healing of the injured site. In this way the immune response functions as a protective mechanism. However, excessive host tissue damage may also result from an improperly controlled immune response, i.e., hypersensitivity or allergic states.

#### **Modulation Factors**

Control or modulation of the immune response is the fourth category or level of immune function in this model and refers to factors which determine or control the initial development of immature cells and their ultimate differentiation and function. The host must coordinate these various factors in relation to the type of insult incurred and the system(s) needed for adequate removal of the offending agent and deactivate the entire system after completion of this process. These control steps begin in the fetus as stem cells are produced and undergo varying degrees of maturation in the bone marrow, fetal liver and thymus. The nonlymphoid epithelial thymus appears to secrete humoral substances which influence pre-T cells to migrate to the organ. Once within the thymus, local cell-cell interaction and hormones interact to influence maturation of T lymphocytes. Among the mature T lymphocytes are T helper and T suppressor cell populations. T helper cells facilitate specific B and T lymphocyte function, and T suppressor cells inhibit these functions.<sup>5</sup> Macrophages are necessary in several stages of immune modulation. They aid in processing certain antigens and are necessary to present these antigens to appropriate T cell subpopulations prior to specific activation.<sup>2,6</sup> In addition, macrophages may suppress T cell activities.<sup>7</sup> As more is learned about the immune system, this control network will no doubt demonstrate even greater complexity.

Inherent as a control mechanism of the immune system are cell-antigen and cell-cell interactions. T and B lymphocytes interact directly with each other, with macrophages, and with antigens during the response to foreign microorganisms or altered self.<sup>6,8</sup> Each of these interactions is under genetic control. The genetic control of immune responses is associated with a series of genes located within the HLA (Human Leukocyte Antigen) system expressed on chromosome 6.<sup>6,8</sup> The

HLA-A, B and C genes influence cytotoxic T cell function. Cytotoxic T cells can kill cells bearing foreign antigens only if this target cell also shares at least one HLA-A or B allele with the host.<sup>8</sup> It has been hypothesized that this system of identification of host cells evolved as defense against viral infections became important. As viruses replicate in animal cells, viral antigens frequently become fused with host cell antigens. A system to discriminate between virus-infected cells and non-infected cells appeared to be necessary so that host defense mechanisms could intervene in a selective manner. The HLA system identifies normal host cells so that cells with additional antigen or altered host antigen (infected cells) may be removed.<sup>6,8,9</sup> Cytotoxic T cells appear to recognize these differences when attacking infected cells.

Another set of host antigens, termed Ia (immune associated), appear to control host cell interactions, e.g., communication between T and B cells, and T cells and macrophages.<sup>6,8</sup> These antigens are encoded by genes within the HLA-D region.

#### **Clinical Manifestations of Abnormal Immune Function**

The consequence of abnormal functioning of any of the host defense mechanisms is disease. Two major categories of disease are: 1) immunodeficiency states which result from a lack of normal function within one or more defense systems, and 2) hypersensitivity reactions or autoimmune phenomena due to misdirected, improperly controlled, or hyperimmune function.

##### **Immunodeficiency**

Immunodeficiency states may be primary or secondary. The inheritance patterns of primary deficiencies suggest that an absent gene product prevents normal development of the function in question. Also, a high proportion of patients with severe immunodeficiency lack purine pathway enzymes (adenosine deaminase, purine nucleoside phosphorylase), further evidence for an underlying gene defect. These conditions are usually identified by the presence of prolonged, recurrent or severe infection or infection with opportunistic microorganisms. For a detailed description of the various immunodeficiency states the readers are referred to references 10 and 11.

In either primary or secondary immunodeficiencies, recognition of the problem is based on the phenotypic pattern of the clinical disease and laboratory abnormalities; very few diseases are identified by recognition of the primary gene defect. In general, the more readily recognized and understood primary deficiencies are phenotypically within the nonspecific and specific categories of our model. Phagocytic and complement deficiencies result in recurrent infections with a variety of bacteria and fungi. Humoral immune deficiencies (hypo- or agammaglobulinemia) also result in recurrent infection with similar organisms (particularly extracellular pyogenic bacteria) because of the complimentary nature of antibody, PMN and



**Table 2**  
**Secondary Immunodeficiency**

1. Protozoal and helminthic infection
2. Bacterial infection
3. Viral infection
4. Malnutrition
5. Neoplasia
6. Renal disease
7. Metabolic disease
8. Gastrointestinal disease
9. Burns
10. Drugs: surgery; anesthesia

complement functions. Defects in the cellular immune system result in repeated infection primarily with intracellular pathogens (tuberculosis, coccidioidomycosis, candidiasis). Severe single or combined system defects often lead to infection with opportunistic agents.

Secondary immunodeficiencies occur in individuals whose immune system is inherently intact but in whom other alterations in homeostasis, affecting the immune system(s), have occurred (Table 2). Another hallmark of secondary immunodeficiencies is that resolution of the immune defect is dependent on correction of the underlying abnormality. The defect may be at any level of the model.

#### Hypersensitivity/Autoimmune Phenomena

Diseases within the second major category are equally diverse and poorly understood. These entities include: atopic allergy; systemic lupus erythematosus (SLE); autoimmune hemolytic anemia; rheumatoid arthritis; thyroiditis; pernicious anemia; Sjogren's syndrome; idiopathic thrombocytopenic purpura; myasthenia gravis; chronic aggressive hepatitis; dermatomyositis; Kawasaki's disease; acute glomerulonephritis; etc. The specific etiology in these diseases is unknown. Some appear to be related to an abnormal reaction to infectious disease, such that the immune response to the infecting agent is either suboptimal (often resulting in circulating immune complexes) or misdirected (autoantibodies), or that uncontrolled inflammation persists causing harm to the host (hypersensitivity reaction).

These explanations suggest defects in the control or modulating functions of the immune system. The autoantibodies (rheumatoid factor, anti-thyroglobulin, anti-smooth muscle, etc.) and the diminished T-suppressor activity, seen in SLE,<sup>12</sup> atopic allergy<sup>13</sup> and in older patients where these diseases are most frequent, corroborate this hypothesis. As with the immunodeficiency states, the autoimmune and hypersensitivity states are recognized by their clinical and laboratory patterns; the underlying pathophysiology is not fully understood.

#### Laboratory Testing of Immune Function

This section will discuss how phenotypic defects in each portion of our model may be identified in the

**Table 3**  
**Immune Function Tests**  
**Nonspecific**

| A. PMN and Macrophage  | B. Complement                                    |
|------------------------|--------------------------------------------------|
| General:               | General:                                         |
| number (total)         | C <sub>3</sub> , C <sub>4</sub> - radial immuno- |
| morphology             | diffusion,                                       |
|                        | nephelometry                                     |
| Functional             | CH <sub>50</sub> - functional                    |
| nitroblue tetrazolium  | Specific:                                        |
| *chemotaxis            | *individual component                            |
| *bactericidal activity | assays:                                          |
| *metabolic activity    | functional & quantitative                        |

\*research tools

clinical or research laboratory. Tests of all phases of the immune system involve identification and quantification of cellular and/or humoral components of either the nonspecific or specific systems and assay of function of these components.

#### Nonspecific Host Defenses (Table 3)

Quantitation of phagocytes and their precursors can be made by examining the peripheral blood and bone marrow, respectively. Inspection of cells to insure normal morphology is equally important. More specifically, phagocytic chemotaxis, phagocytosis, lysosomal enzyme function and microbicidal capability may be tested *in vitro*. With the exception of the nitroblue

**Table 4**  
**Immune Function Tests**  
**Specific**

| A. B Lymphocytes                                                                |
|---------------------------------------------------------------------------------|
| General:                                                                        |
| quantitation IgG, IgA, IgM, IgE,                                                |
| secretory IgA                                                                   |
| isohemagglutinin titers                                                         |
| specific antibody titers (polio, tetanus, streptococcal)                        |
| Specialized:                                                                    |
| response to specific antigen (vaccine) challenge                                |
| B lymphocyte quantitation                                                       |
| *Ig subclasses                                                                  |
| *Ig synthesis <i>in vitro</i>                                                   |
| *antibody dependent cell-mediated cytotoxicity                                  |
| B. T Lymphocytes                                                                |
| General:                                                                        |
| cbc, differential: lymphocyte morphology                                        |
| skin test response                                                              |
| Specialized:                                                                    |
| T cell quantitation                                                             |
| lymphocyte stimulation: specific antigen, allogeneic cells nonspecific mitogens |
| enzymes of purine pathway                                                       |
| *lymphokine production - MIF                                                    |
| *T cell mediated lymphocytotoxicity                                             |
| *interferon production                                                          |
| *research only                                                                  |

tetrazolium test, these procedures are research tools. The other constituents of the nonspecific system may also be studied *in vitro* (Table 3).

#### Specific Immunity (Table 4)

While morphologically indistinguishable, B and T cells are separable by immunologic and surface marker techniques. B cells are characterized by specific, endogenously synthesized antibody incorporated into the cell membrane. Each circulating B cell clone usually possesses a specific class (primarily  $\mu$ ,  $\gamma$ ,  $\epsilon$ ,  $\alpha$ ) of surface immunoglobulin ( $S_{Ig}$ ) demonstrating light chain restriction ( $\kappa$  or  $\lambda$ );  $S_{Ig}$  functions as the specific antigen receptor. Standard fluorescent antibody procedures<sup>14</sup> employing antihuman immunoglobulin are used to identify and quantitate B cells. T cells are quantitated by rosette procedures based on their specific binding to sheep red blood cells.<sup>15</sup> Recently, with the development of hybridoma techniques, it has become possible to

**Table 5**  
**Percentage of Lymphocyte Subpopulations**  
**in the Peripheral Blood**

|                    |        |
|--------------------|--------|
| T lymphocytes      | .75%   |
| B lymphocytes      | 10-15% |
| "Null" lymphocytes | 10-15% |

produce highly specific antibodies to both mature and immature T cells. Hybridoma antibodies are also available for detecting T cell subpopulations, i.e., helper and suppressor/cytotoxic T cells (suppressor and cytotoxic T cells are antigenically similar).<sup>16</sup> These antibodies are used in immunofluorescent methodologies. Helper and suppressor/cytotoxic T cells also can be distinguished on the basis of differences in immunoglobulin  $F_c$  receptors; helper cells may have IgM  $F_c$  receptors ( $T\mu$  cells) and suppressor cells may have IgG  $F_c$  receptors ( $T\gamma$  cells).<sup>17</sup> Immature T cells contain the nuclear enzyme terminal deoxynucleotidyl transferase (Tdt), detectable by fluorescent antibody techniques. Mature circulating T cells are Tdt negative. Both quantitative and functional tests of "null cells" (K and NK) are strictly research tools. The normal values for the various lymphocyte subpopulations in peripheral blood can be seen in Table 5. T and B cell typing procedures have great diagnostic utility in distinguishing malignant from reactive lymphoproliferative diseases, but this application of immunologic testing is reviewed elsewhere (see reference 18).

In addition to quantitating lymphocyte subpopulations as described above, there are methods for evaluating lymphocyte function. In practical immunology, establishing lymphocyte function insures that lymphocytes are not only present, but effective. In microtiter cell culture systems, mitogens (nonspecific surface activators), including phytohemagglutinin (PHA), concanavalin A (Con A) and pokeweed (PWM), are used to induce blast transformation and cell division.

**Table 6**  
**Immune Function Tests**  
**Modulating**

|                                                                                                                                                               |                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Thymus</b><br>General:<br>chest x-ray<br>Specialized:<br>*thymus hormone level<br>*thymus biopsy<br>*thymus epithelial monolayers                       | <b>C. T Helper &amp; Suppressor</b><br>General:<br>* $T\mu$ & $T\gamma$<br>Specialized:<br>*suppression of T cell function<br>*suppression of B cell function<br>*generation of T helper function |
|                                                                                                                                                               | <b>D. Macrophages</b><br>General:<br>same as nonspecific<br>Specialized:<br>*antigen processing                                                                                                   |
|                                                                                                                                                               | <b>E. HLA A, B, C, D (Dr) lymphocyte typing</b>                                                                                                                                                   |
| <b>B. Bone Marrow</b><br>General:<br>morphologic exam<br>Specialized:<br>*clonal production<br>*enzymes: Tdt<br>*T & B lymphocyte precursors<br>research only |                                                                                                                                                                                                   |

The increased DNA activity is quantitated by pulse labeling with tritiated thymidine and  $\beta$  scintillation counting. Mitogen stimulation testing establishes the general capability for transformation (immunoreactivity). Microbial antigens or allogenic lymphocytes (as in the mixed lymphocyte reaction) can be used to stimulate specific clones of lymphocytes. A significant degree of blast transformation indicates previous sensitization or exposure (infection) to the microbial antigen in question or histoincompatibility, respectively. Therefore, antigen stimulation is the *in vitro* counterpart to the initial stages of *in vivo* skin tests and can be used to establish specific immune reactivity as well as corroborate an infectious disease diagnosis. The mixed lymphocyte reaction is a valuable tool in selection of living, related organ donors for kidney transplantation.

#### Modulation Factors (Table 6)

Virtually all tests of the modulating system are research tools. Practically speaking, in children suspected of having immunodeficiency disease, the absence of a thymic shadow in chest roentgenogram is suggestive, but does not establish a diagnosis. Eventually the measurement of circulating thymic hormones, T helper and suppressor cell number and function, macrophage suppressor substances, and other immune modulating substances such as transfer factor and interferon will be available. Tools for identification of genetic associations with disease are likewise approaching clinical application, i.e., association of HLA antigens with specific disease entities (reviewed in reference 19).

#### Discussion

A major remaining question in this discussion is the practical application of the foregoing discussion to



individual patients or, "How can I use these tests in my practice in Phoenix, Flagstaff, or Benson, Arizona?" Certainly mention is made of these clinical problems and assays in every current medical journal and at many continuing education courses. The answers are based on practical reasons and limitations.

Patients with primary immunodeficiency are relatively rare and are usually severely ill. Therefore, they often succumb to their illness unless other family members have been previously recognized, or they do not respond to usual therapy and show a "red flag" early in their course. Only one in 15-20 patients who undergo an initial routine immunodeficiency work up (summarized in tables 3 and 4) will eventually require more complete work up, and one abnormal test result may not give the final diagnosis. A patient with recurrent sinusitis and nasal pustules may be IgA deficient. However, since most patients with this deficiency (which occurs in approximately 1 in 700 persons) are normal, the search for another underlying problem in such a patient should not cease. Likewise a teenage boy with a chronic cough and recurrent episodes of pneumonia and decreased immunoglobulins (IgG, IgA, IgM) should not be automatically labeled as having X-linked agammaglobulinemia and begun on periodic gamma globulin therapy. He should be investigated further for the presence or absence of B lymphocytes, specific antibodies, and T helper and suppressor cell function.

Satisfactory treatment of primary immunodeficiency diseases needs to be based on a clear understanding of the etiology of the disease whenever possible, and not just the phenotypic clinical and laboratory findings. However, availability of adequate therapy is a major limiting factor. By far the majority of immunodeficient patients have secondary deficiencies (Table 2), and in these instances the treatment of the underlying condition is most important.

Application of sophisticated immunologic testing to autoimmune and hypersensitivity disease is even less satisfactory than to immunodeficiency states. For instance the meaning of the decreased populations of T cells in atopic allergy, particularly eczema, is intriguing, but why it occurs and how it is related to the disease has no practical significance at this point. In the future, however, if this decrease is found to be due to abnormal control or modulating function, such as thymus hormone production or secretion, this finding would have important therapeutic implications. Also the pathogenetic role of various autoantibodies is unknown; are they related to the cause or effect of the disease processes? A similar interpretive predicament exists when one measures circulating immune complexes in patients with various diseases (SLE, rheumatoid arthritis, vasculitis, bacterial, viral and parasitic infections, and various malignancies). Until the type of complex associated with a specific stage in a specific disease is understood, the value of this parameter remains questionable at best.<sup>20</sup>

In summary, clinical immunology laboratory procedures can assist primarily in detecting immunodeficiency diseases (and diagnosing malignant lymphoproliferative disorders discussed in reference 18). Too often, however, the underlying disease process, upon which therapeutic decisions should be based, is unknown. With these considerations in mind careful thought should be given to the "routine" institution of immune function tests in every community or hospital laboratory. Preferably these tests should be offered by a centralized referral laboratory which has the support of a team of specialized consultants who regularly evaluate patients suspected of being immunodeficient.

## References

1. Rocklin RE, Bendtzen K, Greineder D: Immunity mediators: Lymphokines and monokines. *Adv Immunol* 29:55-127, 1980.
2. Katz DH, Unanue ER: Critical role of determinant presentation in the induction of specific responses to immunocompetent lymphocytes. *J Exp Med* 137:967-990, 1973.
3. Santoli D, Koprowski H: Mechanisms of activation of human natural killer cells against tumor and virus-infected cells. *Immunol Rev* 44:125-163, 1979.
4. Brier AM, Chess L, Schlossman SF: Human antibody-dependent cellular cytotoxicity. Isolation and identification of a subpopulation of peripheral blood lymphocytes which kill antibody-coated autologous target cells. *J Clin Invest* 56:1580-1586, 1975.
5. Katz DH, Benacerraf B: The regulatory influence of activated T cells on B cell responses to antigen. *Adv Immunol* 15:1-85, 1972.
6. Unanue ER: Cooperation between mononuclear phagocytes and lymphocytes in immunity. *NEJM* 303:977-985, 1980.
7. Katz P, Goldstein RA, Fauci AS: Immunoregulation in infection caused by *Mycobacterium tuberculosis*: The presence of suppressor monocytes and the alteration of subpopulations of T lymphocytes. *J Inf Dis* 140:12-21, 1979.
8. McDevitt HO: Regulation of the immune response by the major histocompatibility systems. *NEJM* 303:1514-1517, 1980.
9. Inada T, Uetake H: Association of mouse adenovirus-induced cell surface antigens with histocompatibility antigens. *Microbiol Immunol* 24:537-545, 1980.
10. Stiehm ER, Fulginiti VA (Eds): *Immunologic Disorders in Infants and Children*. Philadelphia, W.B. Saunders Co, 1980, pp. 183-433.
11. WHO Scientific Group: Immunodeficiency. *Clin Immunol Immunopathol* 13:296-359, 1979.
12. Kaufman DB, Bostwick E: Defective suppressor T-cell activity in systemic lupus erythematosus. *Clin Immunol Immunopathol* 13:9-18, 1979.
13. Rocklin RE, Sheffer AL, Greineder DK, Melmon KL: Generation of antigen-specific suppressor cells during allergy desensitization. *NEJM* 302:1213-1219, 1980.
14. Preud'homme JL, Labaume S: Detection of surface immunoglobulins on human cells by direct immunofluorescence. In: *In Vitro Methods in Cell-Mediated and Tumor Immunity*. Bloom B, David J (Eds), New York, Academic Press Inc., 1976, pp. 155-170.
15. Jondal M, Holm G, Wigzell H: Surface markers on human T and B lymphocytes. I. A large population of lymphocytes forming nonimmune rosettes with sheep red blood cells. *J Exp Med* 136:207-215, 1972.
16. Kung PC, Goldstein G, Reinherz E, Schlossman SP: Monoclonal antibodies defining distinctive human T cell surface antigens. *Science* 206:347-349, 1979.
17. Moretta L, Webb SR, Grossi CE, Lydyard PM, Cooper M: Functional analysis of two human T-cell subpopulations: Help and suppression of B-cell responses by T cells bearing receptors for IgM and IgG. *J Exp Med* 146:184-200, 1977.
18. Grogan TM, Hicks MJ, Jolley C: Immunologic and cytochemical characterization of lymphoreticular malignancies. (Submitted).
19. Sveigaard A, Platz P, Ryder LP, Nielsen LS, Thomsen M: HLA and disease associations - A survey. *Transplant Rev* 22:4-42, 1975.
20. Wiggins RC, Cochrane CG: Immune-complex-mediated biologic effects. *NEJM* 304:518-520, 1981.



# Illness and Bereavement

## Unrecognized Implications for Prevention

Stephen B. Shanfield, M.D.

### Introduction

A poor health outcome, as well as, increased mortality in the bereavement period, has been a consistent finding in a high percentage of widows and widowers (we don't know much about adult child survivors or parents who have lost an adult child).<sup>1-6</sup> While largely unrecognized by the medical community, health problems, which surface during the time after the death of a loved one, cause a large expenditure of health care resources. The increase in morbidity and mortality in the bereavement period has major implications for prevention — for the early identification of potential and real health problems, and the development of early treatment interventions aimed at the reduction of illness. This paper will briefly review 1) the outcome of bereavement in adults; 2) the identification of known risk factors leading to a poor health outcome; and 3) the implications for intervention to prevent or attenuate a poor bereavement outcome.

### Outcome of Bereavement

The emotional responses of losing a loved one have been grouped into four sequences. 1) Initially after the loss the survivor experiences a sense of *shock* with an obtundation of sensory input which can be mediated somewhat by anticipation of the loss. 2) This stage merges into *grief* which has symptoms not unlike depression. 3) With time these symptoms subside and the individual gains more psychological distance and *separates* from the loss. 4) With time the individual undergoes a *creative adaptation* to the loss. This process, the *mourning/liberation*, process is also felt to underlie the adaptation to psychological change.<sup>7</sup>

The grief process can become prolonged or exaggerated so that the bereaved is clinically depressed. Another type of disordered or pathological grief is delayed or blocked grief. This has been associated with an increase in somatic complaints.

There are a number of physical and emotional problems which occur in the bereaved. One important outcome of the loss of a spouse is manifested by increased illness behavior with increased visits to physicians. These consultations are for a wide range of

symptoms, often clustering around the depressive syndrome, and includes headaches, dizziness and other psychophysiologic symptoms. It has also been noted that there has been up to a threefold increase in hospitalization during the first year following the loss.<sup>1,3</sup>

An increase in psychiatric hospitalization up to sixfold has been noted in the bereavement period. Depression is seen in up to 40% of spouse survivors in the first year so that some speak of the so-called "normal depression" of bereavement.<sup>1,8</sup> A number of these individuals go on to have protracted clinical depressions or morbid grief, which has been noted up to two years after the loss. Individuals who are clinically depressed early in the bereavement tend to be the individuals who continue being depressed in the bereavement period.<sup>8</sup>

The differential between grief and depression is an important one since clinical depression can block the resolution of grief. The symptoms of grief are similar to those of depression with feelings of sadness, crying, a sleep disorder and constriction of interest. In grief, however, there is a waxing and waning quality to the expression of the sad feelings as well as other symptoms. Grieving individuals may find themselves crying for a brief period of time and "get over it" to later repeat the cycle. Commonly, spouses survivors sense the "presence" of the dead one for some time after the death. In depression, by way of contrast, there is a "frozen" quality to the depressed feeling, a more enduring and persistent sleep disorder and appetite disturbance as well as suicidal thoughts which are rare in normal grief.

An increased use of hypnotic medications and alcohol has also been noted in the bereavement period. Parkes found a threefold increase in sedative use in the first six months after the spouse loss and sevenfold by the end of eighteen months.<sup>1</sup>

Most studies documenting an increased mortality in bereavement are large scale epidemiologic surveys which are retrospective in nature and use secondary sources of information such as death certificates and hospital records. Such investigations reveal that widows have the highest selective rate of risk of death, particularly in the twenty to thirty-four age group.<sup>9</sup> There is perhaps seven times as great an increase in mortality rates over baseline expectations during the first year following the loss.<sup>1</sup> The two years following the death of a spouse also appears to be the greatest period of risk for female survivors.<sup>10</sup> The causes of death have been noted to be generally from cardiovascular disease, cancer and suicide.<sup>9,11</sup>

Understanding of the relationship between increased morbidity and mortality, and bereavement is complex. Jacobs<sup>6</sup> discusses three levels of influence which help to understand the poor outcome of bereavement. He notes that the *physiologic* expressions of depression and hopelessness can lower resistance to disease by virtue of their influences on the cardiovascular and immune systems. The *behavioral* component of risk is seen in the survivor's lowered quality of health care practices. In this sense, the bereaved take less responsibility for the



management of their own health and neglect early signs of disease or fail to manage disease already present. The social component leading to a poor outcome makes note of the fact that those who have physical and emotional difficulties may lack a close relationship that can provide the support and encouragement that is necessary for getting along in an adaptive fashion.

### **Risk Factors Leading to a Poor Outcome**

Most of the factors leading to a poor bereavement outcome have been studied in individuals after the death of their loved one. It is only in the last few years, with the advent of hospices, that clinical experience has accumulated with spouses *before* the death of their loved ones. In these settings clinical decisions have had to be made to identify individuals in the family of dying patients who are at risk for difficulties in the bereavement period. This experience has been helpful in shaping guidelines for the evaluation of risk for bereavement.

Sudden death has been noted to produce more intense grief because there is less chance to anticipate and adapt to the loss.<sup>1</sup> Other efforts in looking at the length of illness and a poor outcome of bereavement have produced mixed results. Some have found that a longer terminal illness will produce a more difficult bereavement adjustment. In this sense, the individual becomes "worn out" after a protracted illness in the spouse. The time period producing a bereavement, with a greater risk for a poor outcome, is an illness in the spouse lasting longer than six months.<sup>12</sup>

On the basis of clinical experience, adolescent survivors seem to also have a great deal of difficulty in the bereavement period.

A number of other risk factors have been noted. Those individuals who have difficulty in expressing their feelings, or whose psychological defenses are somewhat brittle, or who are prone to express self-criticism and self-reproach have been noted to be vulnerable to problems in the bereavement period.<sup>13,14</sup>

Additionally, certain characteristics in the relationship between the individuals prior to their death can be indicators of difficulties in the bereavement period. Those individuals who seem to have an exaggeration of the traditional marriage seem to do poorly. For instance, skewed decision-making with significant authoritarianism where one individual makes most of the decisions, bodes for a poor outcome. Those individuals in relationships where there is a minimal capacity to express feelings, particularly anger, are also felt to do poorly.<sup>15,16</sup> They have a great deal of difficulty in accepting the intensity of their grief. Conversely, pre-existing overt marital disruption is felt to cause difficulty.<sup>12,14</sup> Clinging dependent relationships and inordinate passivity are also indicators of poor post-loss adjustment, as is significant ambivalence in the relationship.<sup>14,15</sup> A sense in the bereaved of having limited social and psychological contacts is felt to produce difficulties in the adaptation to the loss.<sup>14</sup>

Widows under the age of 45 have been found to have increased physical and psychiatric symptoms.<sup>1</sup> It is as if the young widow who has children in the home, has the most to lose. She has lost a husband, a lover, a father to her children as well as experiencing a marked abruption of future plans.

### **Implications for Prevention**

At this point, enough data has accumulated, particularly in spouses, to identify individuals who will have problems in the bereavement period. Often this is an older age group that is not interested in psychotherapy nor in becoming a psychiatric patient, but often can be helped by the general physician. Important in this group is the recognition and treatment of clinical depression in the bereavement period. There is a high chance for depression in the bereavement period of the elderly. Depression is "endemic" with a prevalence of up to thirty percent in the elderly population. This adds to the increased incidence of clinical depression seen in the bereavement period. Often the depression can be diagnosed and treated even before the death of the patient. This early intervention will minimize problems in the bereavement period.

Often there are many social problems that appear, particularly concerning insurances and wills. Physicians may anticipate and deal with many of these difficulties before the death of the spouse. Some may require referral to social agencies. It is helpful to facilitate making early funeral arrangements, this can allow for more open discussion of the impending death and a better working out of the mourning process. Additionally, the spouse and other family members can be asked if they wish to be present at the time of death. This can often minimize guilt in the bereavement period because the family member feels he or she participated fully along with the dying loved one. It is important for the physician to assess the strengths and supports of the primary care-giver. The doctor can give them permission to take time off and not become worn out. Often the provision of help in the home can provide much needed relief. These interventions are felt to reduce problems in the bereavement period. The pain of grieving cannot be avoided but the many social and psychological difficulties that often accompany the pre-death and bereavement periods can be mediated.

After the death, the physician can facilitate the grief process. Simply listening can be helpful and provide permission to grieve. Suggestions can be made for giving away the loved one's clothes. The physician can be alert to any potential problems that arise, such as depression and the over-use of medications. Individuals can be referred to self-help groups such as "Widowed to Widowed" which provide a forum for grieving as well as discussion of the status of widowhood and the many changes that the widow has to deal with. Often the flurry of social activity around the death is over in a month but the widow takes up to two to three years to adjust to the loss. Social and psychological supports are often necessary for some time.

The bereavement period although painful is a transitional time which also carries with it the seeds of growth. Indeed, many individuals find themselves maturing and taking on new responsibilities and interests. For most the outcome of bereavement is not problem ridden. These positive changes are borne in the crucible of the painful change of the loss of a spouse. The physician can facilitate such growth by the encouragement of meaningful activity on the part of the bereaved.

On occasion the surfacing of physical complaints is because there is no one around to help and encourage the individual. Helping the survivor form a larger social support network can be very important in getting along in the bereavement period.

More research is needed about the outcome of bereavement. Certainly prospective studies following individuals before the death of their spouses are necessary in order to have a better understanding of grief and of those who are at risk for problems in the bereavement period.

Finally, the introduction of the current understanding of bereavement and grief into the medical education system and into everyday clinical practice is important, since the poor outcome bereaved group represents an unrecognized problem group. Early identification of potential problems can decrease the later expenditure of scarce medical resources.

#### References

1. Parkes CM, Brown RJ: Health after bereavement. *Psychosom Med* 34:449-469, 1972.
2. Clayton PJ: The clinical morbidity of the first year of bereavement: A review. *Comp Psychiat* 14:151-157, 1973.
3. Glick IO, Weiss RS, Parkes CM: *The First Year of Bereavement*. New York, John Wiley & Sons, 1974.
4. Epstein G, Weitz L, Roback H, et al: Research on bereavement: A selective and critical review. *Comp Psychiat* 16:537-546, 1975.
5. Jacobs S, Ostfeld A: An Epidemiological review of the mortality of bereavement. *Psychosom Med* 39:344-357, 1977.
6. Jacobs S, Douglas L: Grief: A mediating process between a loss and illness. *Comp Psychiat* 20:165-176, 1979.
7. Pollock GH: The mourning process and creative organizational change. *J Psychoanal Assoc* 25:3-34, 1977.
8. Clayton PJ, Herjanic M, Murphy GE, et al: Mourning and depression: Their similarities and differences. *Can Psychiat Ass J* 19:309-312, 1974.
9. Kraus AS, Lilienfeld: Some epidemiologic aspects of high mortality rate in the young widowed group. *J Chronic Dis* 10:207-217, 1959.
10. Cox PR, Ford JR: The mortality of widows shortly after widowhood. *Lancet* 1:163-164, 1967.
11. Ress DW, Lutkins SG: Mortality of bereavement. *Brit Med J* 4:13-16, 1967.
12. Gerber I, Rusalem R, Hannon N et al: Anticipatory grief and aged widows and widowers. *J Geront* 30:225-229, 1975.
13. Raphael B: Mourning and the prevention of melancholia. *Brit J. Med Psychol* 51:303-310, 1978.
14. Maddison D, Viola A: The health of widows in the year following bereavement. *J Psychosom Res* 12:297-306, 1968.
15. Parkes CM: *Psychological Aspects in the Management of Terminal Disease*. Edited by Saunders C. London, Edward Arnold Publication, 43-64, 1979.
16. Shanfield SB: Social and emotional determinants of the death process. *Arizona Med* 36:602-603, 1979.
17. Lopata HZ: The social involvement of American widows. *Amer Behav Sci* 14:41-57, 1970.

# Diagnosis and Treatment of Sleep Apnea Syndrome in Adults

Lloyd A. Coaker, M.D.  
Stuart F. Quan, M.D.

#### Abstract

The recent expansion in the diagnosis and treatment of sleep disorders has led to increased awareness of sleep apnea as a major clinical entity. Early identification by the primary care physician may afford these patients corrective therapy before irreversible sequelae occur. This review defines the syndrome, addresses the salient clinical features, and discusses the implications of securing a definitive diagnosis and the need for individualized treatment based on severity and mechanism of the syndrome.

**Key Words:** Sleep apnea syndrome; Pickwickian syndrome; Daytime hypersomnolence; REM sleep = Rapid eye movement sleep; NREM sleep = Non-rapid eye movement sleep.

#### Introduction

The advent of polysomnographic (sleep) laboratories in major medical centers has led to extensive investigation of the numerous sleep disorders noted in man. Data collected in these studies have been appearing in the medical literature with great regularity in the last several years and have therefore increased the level of awareness of these disorders among practicing physicians. From among the multiple disorders associated with sleep, the entity of sleep apnea has achieved major clinical significance. The purpose of this review is to summarize the important clinical, diagnostic, and therapeutic aspects of this disorder.

#### Definitions

Apneic episodes, defined as cessation of airflow past the mouth and nose lasting at least ten seconds, become part of a syndrome (vide infra) if there are greater than thirty such episodes identified during rapid eye movement (REM) as well as nonrapid eye movement (NREM) sleep over a seven hour period.<sup>1</sup> This is an arbitrary definition elicited from data obtained during numerous sleep studies done at the Stanford University Sleep Disorders Clinic, and varies somewhat from definitions by others such as Phillipson who defines apnea in adults as a time duration of at least fifteen seconds.<sup>1,2</sup> There are three identifiable types of apnea:

From: University of Arizona Health Sciences Center, Department of Medicine and the Division of Respiratory Sciences, Tucson, Arizona 85724.



1. **Central** — in which apnea occurs in conjunction with cessation of respiratory efforts.
2. **Obstructive** — in which apnea occurs in spite of increasingly greater respiratory effort.
3. **Mixed (complex)** — which has an initial brief period of central apnea followed by the return of respiratory drive in an obstructive pattern.

#### Clinical Manifestations of the Sleep Apnea Syndromes

These syndromes are typified by a composite of symptoms and physical findings the most prominent of which are daytime hypersomnolence, extremely loud snoring interrupted by periods of apnea, systemic and pulmonary hypertension, and cardiac arrhythmias. The clinical findings are most striking in patients with pure obstructive apnea, but similar symptoms also occur in patients with central or mixed apneas. Although it is commonly thought that these syndromes are primarily associated with markedly obese (Pickwickian) patients, Guilleminault reports a 61% incidence in nonobese individuals.<sup>1</sup> Male predominance is a prominent feature,<sup>1-3</sup> and the occurrence of the syndrome in females is almost completely limited to postmenopausal women.<sup>4,5</sup> Although sleep apnea appears in patients of all ages, the majority of symptomatic patients are between forty and sixty years of age.

In the obstructive type of apnea the condition is usually brought to a patient's or doctor's attention by the bed partner because of a repetitive pattern of extremely loud snoring, followed by periods of silence ending in a loud snort. Invariably there will be a history of the bed partner sleeping in a separate bed and/or a separate room. Many times the patient will be observed to be having "spells" where he or she "didn't breathe, and turned a pale color," at which point some partners have instituted measures to awaken the patient. Sometimes the patient will recall that there has always been a problem with loud snoring which has gotten progressively worse. It is not unusual for such a patient to have a snoring history since adolescence.<sup>3</sup>

Daytime hypersomnolence, which is the other major complaint that brings these patients to medical attention, can be very bizarre and at times catastrophic. One of the patients we studied had recently given up driving because he "fell asleep" one afternoon while driving down a local street. As a result, he then ran into a parked car, drove onto a sidewalk, and hit a fire hydrant. He subsequently reported being aware of something happening, but not being able to control his drowsiness. Several weeks previously, he had fallen asleep while window-shopping and crashed into a glass display case. Another of our patients, a hunter, was sighting down the barrel of his rifle at an elk and fell asleep, snoring loudly. He was awakened by the animal pawing at his shelter, curious as to what those snorting sounds meant. This daytime sleepiness seems to predominate in the obstructive type of sleep apnea, whereas insomnia and fatigue are more common in the central type.<sup>2</sup> Despite frequent daytime naps these patients do not feel

refreshed or rested after sleeping. Hypnagogic hallucinations and periods of retrograde amnesia during which time patients may complete simple tasks have been noted in 40 and 44 percent respectively of the patients studied in one series.<sup>1,3,6</sup> An example of somewhat more complex behavior was exhibited by another of our patients who gave a history of having driven a distance of approximately 100 miles, negotiated a business arrangement over several days, and returned without any recollection of his endeavors.

Another clinical manifestation is abnormal movements which occur prior to the resumption of normal respiration. These may vary from minor tremulousness of one or both upper extremities to wild swinging of the arms and legs, and in some instances contortions of the torso.<sup>7</sup> Often times patients will sleep walk and bump into objects; then awaken and return to bed to resume their snoring with no recollection of the event. It is also not uncommon for the sleep apnea patient to be awakened by their spouse only to be disoriented or have difficulty with visual perception.<sup>1</sup> Other sleep associated findings include nocturnal bed wetting which is more common in children than in adults, and a characteristic morning headache which improves after several hours of wakefulness. Marked personality changes such as unusually aggressive and irrational behavior, frank psychosis, deterioration in intellectual function, and impotence are additional clinical symptoms which may be encountered. Children in particular, may have decline in intellectual function as the only daytime manifestation of the syndrome.

Two major cardiovascular findings are noted on examination of patients with this syndrome, particularly those having the obstructive type. First, hemodynamic monitoring has shown cyclic elevation in systemic and pulmonary artery pressures with the initiation of apneic episodes. After termination of the period of apnea, these values tend to return to baseline except where successive apneic periods produce stepwise pressure elevations.<sup>8</sup> The hemodynamic changes coincide with declines in oxygen saturation and hypoxemia. The latter is certainly a commonly accepted cause for an increase in pulmonary vascular resistance, either indirectly through a reflex increase in sympathetic tone, or through a direct effect on the pulmonary vasculature. The nightly persistence of these changes in a patient might eventually result in permanent elevation of pulmonary arterial pressures and development of cor pulmonale. It has been observed that while patients are awake and not having apneic episodes their systemic and pulmonary arterial pressures are at control levels.<sup>8,9</sup> These observations imply that correction of hypoxemic episodes occurring with sleep apnea can prevent development of the hemodynamic sequelae. This has been verified by Motta et al.,<sup>10</sup> who reports an improvement in hemodynamic parameters after tracheostomy to relieve obstructive apnea in six patients. The second frequently noted cardiovascular

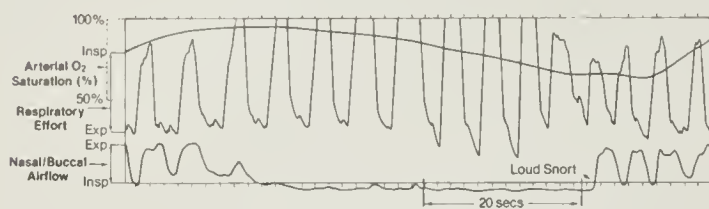


Figure 1

Tracings of obstructive apnea in a subject during Stage II non-rapid eye movement (NREM) sleep. There is a cessation of airflow at the nose and movement for > 20 seconds with progressive increase in respiratory efforts. Desaturation occurs to a maximum level of 75% during this episode. \*Note there is a lag time of 4 seconds between respiratory effort and air flow.

abnormality is the presence of cardiac arrhythmias which is a rather ominous finding because of their rapidly lethal potential. Most commonly observed are ventricular tachycardia, premature ventricular beats, varying degrees of sinus arrest, and multiple sinus arrhythmias.<sup>1,11,12</sup> Bradycardias occurring during the early or mid-portion of the apnea periods have also been noted and are believed to result from enhanced vagal stimulation. Another factor implicated in causing arrhythmias in some patients is catecholamine release with subsequent "beta-adrenergic hyperresponsiveness."<sup>4</sup>

A familial predisposition has been suggested, and indeed obstructive apnea has been identified in a family.<sup>13</sup> The genetic abnormality appeared to be related to loss of tonic control of the genioglossus muscle in the pharynx. In addition, studies of patients and siblings of Sudden Infant Death Syndrome (SIDS) victims have provided data supporting the hypothesis that apneic episodes during sleep are part of a common pathway involved in sudden death.<sup>14</sup> It is believed that a connection exists between SIDS and sleep apnea in adults, wherein the latter may represent survivors of those infants who had a predisposition towards SIDS or were "near miss" SIDS. As plausible as this hypothesis may be in view of the occurrence of apneic periods in both adults and infants, there is insufficient data to make a direct link between the two syndromes. Understandably, there is no longitudinal study that has followed these "near miss" infants to adulthood.

#### Diagnosis of Sleep Apnea

These syndromes are suspected from the classic clinical presentation of snoring and/or hypersomnolence in an adult male. However, subtle presentations such as

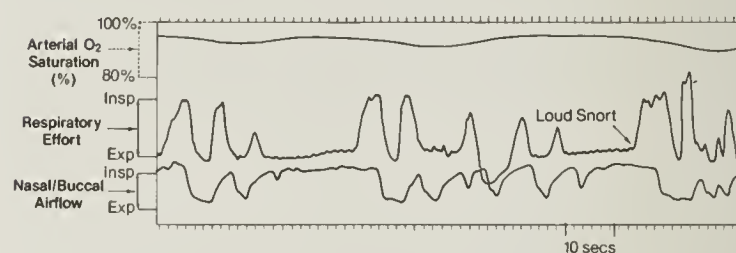


Figure 2

Tracings of successive central apneic episodes showing concurrent cessation of airflow and respiratory effort during Stage II NREM sleep. Desaturation is minimal, falling to less than 5% below a baseline of 90%. This patient presented with cough syncope.

unexplained hypertension combined with a cardiac dysrhythmia often occur. Unexplained occurrence of any of the previously discussed manifestations of sleep apnea should heighten one's index of suspicion for this disorder.

Definitive evidence of sleep apnea is obtained by an all night polysomnogram. This recording consists of continuous monitoring of 1) electroencephalogram/oculogram to determine sleep stages and abnormal cortical activity, 2) electrocardiogram for identification of dysrhythmias, 3) monitoring of respiratory airflow using nasal and buccal thermistors, or a CO<sub>2</sub> analyzer, 4) impedance pneumography, electromyogram, or esophageal manometry to assess ventilatory effort, and 5) ear oximetry or transcutaneous PO<sub>2</sub> analyzers to detect apnea associated arterial desaturation. Figures 1 and 2 obtained from polysomnograms show tracings depicting obstructive and central types of sleep apnea.

In our patients we have used the endoesophageal manometer which senses intrathoracic pressure changes prior to chest wall movement. This provides very accurate measurements of ventilatory effort with very little artifact from muscle tremors or patient movement. We have been successful in circumventing the gag reflex observed in most patients by administering minimal amounts of a local anesthetic (2% xylocaine) to the naso and oropharynx prior to balloon insertion. We have also had better success using the ear oximeter rather than the transcutaneous PO<sub>2</sub> monitor to detect changes in arterial oxygenation. Most often an overnight polysomnogram is necessary to adequately detect sleep apnea, although in some severe cases a screening test of several hours duration will suffice. Our initial studies were of the screening variety; patients were sleep deprived and then studied for several hours. However, we found that there is enough variability in



milder cases that an overnight study is necessary. In addition, the possibility of other sleep disorders is not excluded with a screening study.

Once the diagnosis of sleep apnea and its severity is confirmed by polysomnography, further diagnostic evaluation is necessary to exclude conditions associated with sleep apnea. This may include an ENT exam, pulmonary function testing with flow-volume loops, evaluation of thyroid function, x-rays of the chest and lateral neck, and in select cases neurologic and endocrine evaluations (Table 1).

## Treatment

Therapeutic intervention is based on the following considerations: 1) symptom severity; 2) type of apnea; and 3) if there is obstructive apnea, mechanism of obstruction.

Evaluation of symptom severity remains somewhat arbitrary. Life threatening dysrhythmias and apnea events leading to marked hypoxemia or cardiovascular sequelae present no difficulties in making a decision to perform a tracheostomy in obstructive apnea. The other end of the clinical spectrum is represented by a number of "normal" individuals who when studied show only hypopneic episodes.<sup>15</sup> No one knows what the natural progression of this phenomenon might be. Do these patients then go on to have severe apneic spells and subsequent cardiovascular compromise? Should everyone with confirmed obstructive apnea have surgical intervention to relieve the obstruction? The answers to these questions are not yet known. Treatment is generally advised for severely affected patients, but in less severe cases, the risk and side effects of therapy must be weighed against the extent of disability from sleep apnea.

Tracheostomy results leave no doubt that it is the therapy of choice in severe life threatening obstructive apnea. There is certainly good evidence to support its therapeutic efficacy with regards to correction of both the clinical symptoms and the hemodynamic

**Table 1**  
**Conditions Associated with Sleep Apnea**

### Obstructive:

Upper airway abnormalities (hypertrophied tonsils/adenoids, masses)  
Developmental anomalies of the jaw/neck/oropharynx (micrognathia)  
Systemic disease (hypothyroidism)  
Morbid obesity (Pickwickian)

### Central

Brainstem lesions  
Cervical/Spinal injury  
CNS infections  
Idiopathic hypoventilation

abnormalities.<sup>8,10</sup>

Obstructive apnea that has an oropharyngeal abnormality as its cause usually responds to surgical correction of the abnormality. Weight loss for the obese patient has been recommended, but success is minimal. Nasopharyngeal airways have been tried, but are not well tolerated. Electrophrenic stimulation can aggravate an already existing upper airway obstruction. Pharmacologic therapy with protriptyline has recently been reported to provide some beneficial results in patients with moderately severe symptoms.<sup>4</sup> Fiberoptic and electromyographic studies have identified a decrease in tonic activity of pharyngeal dilators, collapse of airways at the onset of inspiration, and an apparent mismatch of airway coordination during the respiratory cycle in patients with obstructive apnea.<sup>16</sup> Protriptyline acts by improving airway coordination in these patients. Its major disadvantage is that it can worsen existing arrhythmias.

The basic mechanism for central apnea is decreased ventilatory drive. Pharmacologic treatment to increase central ventilatory drive includes acetazolamide, medroxyprogesterone, clomipramine, and theophylline derivatives<sup>2</sup> (Table 2). Theophylline has been of limited

**Table 2**  
**Therapy of Sleep Apnea**

| Syndrome    | Therapy                                   | Effect                           | Comments                                    |
|-------------|-------------------------------------------|----------------------------------|---------------------------------------------|
| Central     | Medroxyprogesterone                       | Increases ventilatory drive      | Associated with breast neoplasms in dogs    |
|             | Theophylline                              | Increases ventilatory drive      | Limited effectiveness in neonates only      |
|             | Electrophrenic pacers                     | Produces ventilatory stimulation |                                             |
| Obstructive | Cuirass ventilators                       | Assists ventilatory efforts      |                                             |
|             | Tracheostomy                              | Circumvents obstruction          |                                             |
|             | Protriptyline                             | Improves airway coordination     | Can increase dysrhythmias                   |
|             | Surgical repair of Lesions/anomalies      |                                  |                                             |
| Mixed       | Electrophrenic Pacing and/or Tracheostomy |                                  | May worsen obstruction without tracheostomy |
|             | Progesterone and Tracheostomy             |                                  |                                             |

benefit in infants. Of the other medications only medroxyprogesterone has shown consistent efficacy.<sup>17</sup> Its major side effects are impotence in men and menstrual irregularities in women. There is also an association with breast neoplasms in dogs.<sup>4</sup> Electrophrenic stimulation is very successful in selected cases.<sup>18</sup> It should be considered in severe cases when pharmacologic therapy is contraindicated or has failed. In mixed apnea, treatment must be individualized, and therapy may be required for both the obstructive and central components.

## Conclusion

The serious medical and social complications of sleep apnea syndromes make their identification and treatment of clinical importance. Polysomnographic studies can definitively diagnose the type and severity, but initial recognition is rapidly becoming the concern of the primary care physician. Many patients are identified after severe symptoms and cardiovascular complications are present. Evidence suggests that some of these changes may be completely reversible if appropriate treatment is provided.<sup>9,10</sup> However, early identification of patients introduces another problem, namely, how aggressive should treatment be in patients who are not severely affected? The solution to this problem is not known since lack of longitudinal studies of patients with minor clinical findings has not allowed for predictive data on the progression of the syndrome. An individual approach to each patient is necessary in these cases. Hopefully, continued investigation will make future treatment decisions easier for clinicians. Recognition of the symptom complex by practicing physicians and subsequent referrals to sleep study centers will make this possible.

## References

- Guilleminault C, Tilkian A, Dement W: The sleep apnea syndromes. *Ann Rev Med* 27:465-484, 1976.
- Phillipson EA: Breathing disorders during sleep. *Basics of RD* 7:18-23, 1979.
- Guilleminault C, Eldridge FL, Tilkian A, Simmons B, Dement WC: Sleep apnea syndrome due to upper airway obstruction. *Arch Intern Med* 137:296-300, 1977.
- Clark RW: Sleep apnea. *Primary Care* 6(3):653-679, 1979.
- Block AJ, Wymer J, Boysen PG: Sleep disordered breathing and nocturnal oxygen desaturation in postmenopausal women. *Am J Med* 69:75-79, 1980.
- Guilleminault C, Dement W: Amnesia and disorders of excessive daytime sleepiness. In: *Neurobiology of Sleep Memory* T McGaugh, R Drucker-Colin (Eds), New York: Academic, 1975.
- Guilleminault C, Billiard M, Montplaisir J, Dement W: Altered states of consciousness in disorders of daytime sleepiness. *J Neurol Sci* 26:377-393, 1975.
- Tilkian A, Guilleminault C, Schroeder J, Lehman KC, Simmons B, Dement WC: Hemodynamics in sleep-induced apnea. Studies during wakefulness and sleep. *Ann Int Med* 85:714-791, 1976.
- Coccagna G, Mantovoni M, Brignani F, Parachi C, Lugaresi E: Continuous recording of the pulmonary and systemic arterial pressure during sleep in syndromes of hypersomnia with periodic breathing. *Bull Physio-path Resp* 8:1159-1172, 1972.
- Motta J, Guilleminault C, Schroeder J, Dement WC: Tracheostomy and hemodynamic changes in sleep-induced apnea. *Ann Int Med* 89:454-458, 1978.
- Deedwania P, Swiryn S, Dhingra R, Rosen K: Nocturnal atrioventricular block as a manifestation of sleep apnea syndrome. *Chest* 76:319-321, 1979.
- Tilkian A, Guilleminault C, Schroeder J, Lehman KC, Simmon B, Dement WC: Sleep-induced apnea syndrome. *Am J Med*, 63:348-358, 1977.
- Strohl KP, Saunders NA, Feldman NJ, Hallett M: Obstructive sleep apnea in family members. *N Engl J Med* 299:969-973, 1978.
- Steinschneider A: Prolonged apnea and the sudden infant death syndrome: Clinical and laboratory observations. *Pediatrics* 50:646-654, 1972.
- Block AJ, Boysen PG, Wynne JW, Hunt LA: Sleep apnea hypopnea and oxygen desaturation in normal subjects: A strong male predominance. *N Engl J Med* 300:513-517, 1979.
- Guilleminault C, Hill MH, Simmons FB, Dement WC: Obstructive sleep apnea; Electromyographic and fiberoptic studies. *Exp neurol* 62:48-67, 1978.
- Sutton Jr. FD, Zwillich CW, Breogh CE, Pierson DJ, Weil JV: Progesterone for outpatient treatment of Pickwickian syndrome. *Ann Int Med* 83:476-479, 1975.
- Farmer WC, Glenn WL, Gee BL: Alveolar hypoventilation syndrome: Studies of ventilatory control in patients selected for diaphragm pacing. *Am J Med* 64:39-49, 1978.



# Differential Diagnosis of Insomnias and Parasomnias

Alfred W. Kaszniak, Ph.D.  
Larry E. Beutler, Ph.D.

## Abstract

Research and clinical observations relevant to the differential diagnosis of insomnias and parasomnias are reviewed. The rationale for the necessity of both subjective and objective evaluation of patient's complaints of poor sleep is emphasized. Diagnostic criteria for the differentiation of primary from secondary insomnia are explained, along with their different treatment implications. Diagnostic procedures, including medical and psychological evaluation, and all-night polysomnographic studies are outlined. Parasomnias, defined as activities such as urinating or walking, although normal during wakefulness, create problems when performed during sleep, are explained. Focus is placed upon somnambulism, enuresis, and night terrors, and their association with deep (stages III and IV) sleep is described. Finally, a brief review of treatment considerations in these disorders is provided.

**Key Words:** Sleep, insomnias, parasomnias, polysomnographic recording.

## Introduction

This review is intended to serve two fundamental purposes. The first is to assist the clinician in the differential diagnosis of patients complaining of difficulty in initiating and/or maintaining sleep, and of patients with sleep-associated problems such as somnambulism (sleepwalking), nightmares, bruxism

and enuresis. The second purpose is to familiarize the clinician with the role of sleep laboratories and sleep disorders centers in the diagnostic process.

## Insomnias

It is conventional to differentiate between initial insomnia, sleep maintenance insomnia, and terminal or early awakening insomnia. Yet, ultimately such distinctions are arbitrary. Insomnia is a psychological phenomenon that only poorly reflects its physical counterparts. While as many as 35% of the population are estimated to have disturbed sleep by objective measurement, neither all of those who have disturbed sleep find it to be a problem, nor do all of those who complain of sleep difficulty have disturbed sleep by objective criteria.<sup>1</sup>

While the past two decades have seen a dramatic increase in the amount of effort invested in studying sleep disturbance, much of the literature remains confusing and inconsistent. In part, this inconsistency can be seen as a reflection of various and divergent methodologies. For example, much of the research literature reflects findings based upon individuals who are self-defined insomniacs. These studies have usually taken place by means of sleep logs and questionnaires rather than objective recordings of electroencephalographic (EEG) parameters. To these investigators, insomnia is purely a subjective phenomenon and its polysomnographic parameters are irrelevant to their particular interests of diagnosis and treatment.

In contrast, laboratory based sleep investigators have typically considered insomnia to exist only in the

presence of both subjective and empirical evidence of sleep disturbance. Hence, such investigations have frequently excluded subjects who have complained of sleep disturbance but in whom no disturbance can be observed in EEG, electrooculogram (EOG), and electromyogram (EMG) recordings. Since estimates suggest that nearly half of those who complain of sleep disturbance show no polysomnographic evidence of disturbance, the populations on which these two types of investigations have based their conclusions may be dramatically different.<sup>2</sup>

The importance of according the subjective and objective elements of sleep equal status in the diagnosis and treatment of sleep disorders is underscored by the fact that sleep efficiency (a ratio of time slept to time in bed), rather than actual sleep time, is the greater determiner of subjective complaints of insomnia. Some individuals, for example, sleep for exceedingly short periods in a given night without undue distress,<sup>3,4</sup> and even long sleepers can be trained to get by on very little sleep. All of this occurs without either excessive daytime sleepiness or disturbance in concentration, motor coordination, and perceptual orientation. In those whose sleep efficiency is low, some or all of the foregoing disturbances may occur, regardless of whether actual sleep time is 3 or 10 hours. In addition, the reported disturbances seem often to be a function of disproportionate percentages of sleep time spent in particular stages of sleep. Experimental deprivation of deep sleep (stages III and IV), as well as rapid eye movement (REM) sleep, exerts an influence on subsequent psychological functioning.<sup>5</sup> Some<sup>6</sup> have come to believe that disturbance in these stages of sleep may be more closely associated with many of the complaints of insomnia than the amount of sleep per se. Like many descriptive diagnoses, insomnia probably reflects a wide variety of physical and psychological disorders, exhibited in a similar symptom complex. In other instances, the sleep disturbance itself may be relatively independent of either psychiatric problems or identifiable organic disease. The etiology of such primary sleep disturbance is unclear at present, but a variety of treatment options are available to assist individuals who suffer from these primary insomnias if they are appropriately diagnosed.

### **Primary Insomnia**

The diagnosis of primary insomnia rests with the observation that the sleep disturbance is the principal or only symptom. An understanding of the subjective and objective sleep phenomena requires a closer look at that sub-population referred to as "pseudoinсомniacs." As previously indicated, a large proportion of individuals who complain of sleep disturbance exhibit no objective evidence of disruption in sleep staging or sleep quantity. Typically, such pseudoinсомniacs have been considered to be suffering from a psychological disorder, or to be malingering, rather than having a primary sleep disorder. Surprisingly, objective personality evaluation

fails to support this assumption.<sup>2</sup> It has been suggested<sup>1</sup> that pseudoinсомnia may well be a condition in its own right, reflecting subtle and as yet undisclosed alterations in central nervous system functioning.

In the case of primary insomnia, individuals suffering the consequent sleep deprivation are likely to experience irritability, depression, anxiety, and some hypersensitivity to the concerns and impression of others.<sup>7,8</sup> The differentiation, of this pattern from insomnia secondary to psychological disturbance, is both in terms of the prevalence of psychological symptoms and the assumed or demonstrated cause-effect sequence. By history, one can usually determine if these symptoms were preexisting and if their intensity varies with the quality of sleep.

Primary insomnia typically takes the form of an initial or sleep latency disturbance. While some individuals complain of sleep maintenance disturbance as well, the degree to which they awaken more than normal is uncertain.<sup>2</sup> The correspondence between one's estimate of sleep time and objective evidence of number of awakenings is relatively low.

### **Secondary Insomnia**

A variety of sleep disorders accompany major medical or psychological disorders. Treatment implications for these secondary sleep disorders are quite different from those of the primary insomnias. It is because of this, that clear diagnostic information must be obtained before either medical or psychological treatment is rendered. Numerous medical problems produce sleep disturbance. For example, central nervous system trauma, infections and degenerative conditions,<sup>9</sup> thyroid dysfunction,<sup>10,11</sup> uremia,<sup>12</sup> and alcoholism<sup>13</sup> have all been shown to produce sleep disorder. Chronic use of hypnotic medication itself seems to result in disturbance in the sleep-wakefulness cycle over the course of time.<sup>14</sup> In most of these instances, treatment of the primary organic disease or withdrawal of sleep-interfering drugs can gradually relieve the difficulty.

Sleep disturbance can also accrue as a secondary reaction to intense emotional turmoil. Disturbances sufficiently severe to warrant psychiatric diagnosis are frequently accompanied by disturbances in sleep. For example, depressive disorders are often accompanied by difficulty in sleep maintenance or by early morning awakenings.<sup>15</sup> In contrast, anxiety disorders are reflected in initial insomnia and schizophrenic disorders are typically characterized by multiple types of sleep disturbances during their acute phases.<sup>16</sup> As with other types of secondary insomnia, correction of any of these difficulties requires that the primary disorder is diagnosed and treated.

### **Diagnostic Procedures**

Differential diagnosis of primary and secondary insomnia, including pseudoinсомnia, necessitates a medical evaluation to rule out major organic disorder or iatrogenic effects of medication, a psychological evaluation to assess degree of psychopathology and



adequacy of coping, and a two or three night polysomnographic evaluation to determine the nature of the sleep disruption. Withdrawal from all possible medications, as well as, twenty-four hour abstinence from alcohol is helpful in making the final diagnosis. Questioning patients upon arising about the nature of their sleep and its comparative efficiency all assist in this diagnostic process. Ultimately, pseudoinomnia can only be diagnosed by intensive questioning of the individual to assess his/her subjective impression of sleep and comparing this to objective sleep quality and efficiency, while ruling out major psychological disorder.

Primary insomnia is indicated by objective evidence of sleep maintenance or sleep initiation disturbance in the absence of major organic or psychiatric disorder. Mental status examination, along with formal psychological evaluation, can determine the degree to which depression or anxiety are primary features. There are also certain diagnostic indices of depression in polysomnographic sleep studies. For example, subtle variations in deep sleep and REM sleep have been suggested as having diagnostic significance for major affective disorders.<sup>15</sup>

### **Parasomnias**

Parasomnias have been defined as activities such as urinating or walking, which though normal during wakefulness, create problems when performed during sleep.<sup>17</sup> Somnambulism, nightmares, and enuresis appear to often be related to a partial arousal from deep (stages III and IV) sleep, rather than to REM stage dreaming, as had previously been suspected.<sup>18</sup> When disrupted during deep sleep, susceptible individuals appear to enter a state of confusion, indicated by a mixture of delta (deep sleep), alpha and beta waves in the EEG. Somnambulism, enuresis and nightmares may occur in this confused state. As noted by Hauri,<sup>14</sup> several observations support the notion that parasomnias may be manifestations of incomplete arousal from deep sleep. Parasomnias usually occur early in the night, when delta sleep is most abundant. Parasomnias occur more frequently in children, who have less-established boundaries between full wakefulness and sleep than have adults, and who, developmentally, have more delta sleep. Patients are difficult to arouse when exhibiting parasomnia, possibly because they are in a confusional state rather than in normal sleep. Finally, different forms of parasomnia often occur in the same person.

### **Somnambulism**

It has been estimated<sup>19</sup> that 15% of all children between the ages of five and twelve have had at least one episode of somnambulism. It is found more often in boys than in girls, and usually disappears with age. EEG during sleepwalking shows a mixture of delta and high-amplitude alpha waves.<sup>20</sup> During this confusional state, relatively simple behavior can be carried out, but the senses are not sharp and coordination is poor. There is some evidence that adult somnambulists suffer from psychological problems amenable to psychotherapy.<sup>21</sup>

Somnambulism must be differentiated from fugue state and from psychomotor epilepsy. Psychopathological features consistent with dissociative reactions are common in fugue and not in somnambulism. Behavior during fugue states is typically more complex and lasts longer than in somnambulism. Differentiation from psychomotor epilepsy should be done by thorough neurological examination and history, and clinical EEG.

### **Enuresis**

The term primary enuresis refers to patients who have never been consistently dry for at least one period in several months. Secondary enuresis refers to bedwetting which has reoccurred after at least one dry period. It has been estimated<sup>22</sup> that 10% of all children at age seven and 3% at age 12 remain primary enuretics, although other estimates<sup>19</sup> run as high as 22% in children from 4 to 14 years of age. In both primary and secondary enureses, etiologies such as urethral obstructions in males and ectopic urethra in females must be ruled out. Enuretic episodes usually start with a series of bladder contractions during delta sleep (stages III and IV), often associated with general body movement. The sleep pattern changes to stage II or I during micturition. Bedwetting tends to increase when the child is under stress, and psychological factors are thought to be more often related to secondary enuresis than to primary enuresis.<sup>14</sup>

### **Nightmares and Night Terrors**

Nightmares are frightening dreams which occur during REM sleep. They typically occur during the early morning hours because REM sleep is more abundant toward morning. Sufferers usually have detailed recall of their nightmares. REM stage nightmares have been related to psychological conflict and psychopathology in general.<sup>14</sup> Night terrors occur early in the night, during delta sleep, and are accompanied by extreme physiological arousal and screaming, and patients seldomly remember much of their contents.<sup>24</sup> It has been estimated that only about one to three percent of children from five to twelve years of age have night terror attacks, with an even lower prevalence in adults.<sup>21</sup> Although night terrors, as other parasomnias, usually appear to be disorders of incomplete arousal, they may be the first clear signs of other problems such as psychomotor epilepsy or sleep apnea.<sup>14</sup> These possibilities need to be ruled out via physical and neurological examination, history, and in the possibility of sleep apnea, all night polysomnographic recording.

### **Diagnostic Procedures**

Procedures in the differential diagnosis of the parasomnias are similar to those recommended above for the insomnias, including thorough medical and psychological evaluation. Except for the case of ruling out sleep apnea as a cause of night terrors, all night polysomnographic recording plays a less important role than in the case of insomnia. Reliable report of the time of night during which the parasomnia occurs (given the relative abundance of delta sleep early in the night and

REM sleep later in the night) is often sufficient. Polysomnographic studies are also indicated when the relationship of nocturnal enuresis or somnambulism to nocturnal epilepsy, sleep apnea, or other sleep disturbance is suspected.

### Treatment Considerations

Since the focus of this review is on differential diagnosis of the insomnias and parasomnias, only a brief discussion of treatment will follow. Numerous medications have been utilized in the treatment of primary and some secondary insomnias, but virtually all lose their effectiveness after a few weeks. Indeed, as previously discussed, hypnotics may ultimately interfere with sleep during prolonged use. Of perhaps greater significance is the observation that individuals often believe that the disturbance noted during medication withdrawal demonstrates the medication was effective. Hence, the withdrawal disturbance may lead them back into chronic medication use, even though such medications no longer have a significant effect in producing or maintaining sleep. Getting patients through this initial withdrawal is often a primary aim of treatment. Hauri<sup>14</sup> has produced an excellent guide to the cautious and informed prescription of sleep medications.

Psychological treatment of primary insomnia has been relatively successful. Research suggests that if a patient is able to attribute any alteration in sleep patterns to something he/she has done or learned through psychological intervention, sleep maintenance is likely to be increased over time. If, on the other hand, they come to attribute the change in sleep pattern to even an inactive medication, they revert to insomnia after the medication withdrawal.

Environmental structuring,<sup>25</sup> relaxation training<sup>25</sup> and biofeedback<sup>26</sup> have been found to produce favorable results in the correction of primary insomnia.

Diazepam and imipramine have been employed in treatment of somnambulism,<sup>14</sup> and night terrors,<sup>14,21</sup> with effectiveness possibly due to suppression of stage IV sleep. Protective measures, such as removing potentially dangerous objects, locking windows and doors, and requiring the patient to sleep on the ground floor are also important in the management of somnambulism. Psychotherapy and behavioral treatments appear to be effective methods for REM nightmares.<sup>14</sup> Studies have reported 70 to 85 percent improvement when enuresis is treated with imipramine.<sup>27</sup> Unfortunately, patients often relapse with discontinuation of the drug. A number of behavioral techniques appear effective if enuresis persists into later childhood. The best known is the bell-and-blanket technique, where a bell awakens the patient immediately after micturition. Since success of this technique depends upon sensitive adjustment of rewards, punishments, and family attitude, it has been recommended that a qualified behavioral therapist be consulted before attempting this method.<sup>14</sup>

### References

1. Karacan I, Williams RL, Littell RC, Salis PJ: Insomniacs: Unpredictable and idiosyncratic sleepers. *Proceedings of the First European Congress on Sleep Research*. Basel: S. Karger, 1973.
2. Beutler LE, Thornby JL, Karacan I: Psychological variables in the diagnosis of insomnia. In: *Sleep Disorders: Diagnosis and Treatment* RL Williams, I Karacan (Eds), New York: Wiley, 1978, pp. 61-100.
3. Webb WB, Friel J: Characteristics of "natural" long and short sleepers: A preliminary report. *Psychol Rep* 27:63-66, 1970.
4. Webb WB, Friel J: Sleep stage and personality characteristics of "natural long and short sleepers." *Science* 171:587-588, 1971.
5. Agnew HW, Webb WB, Williams RL: Comparison of stage four and 1-REM sleep deprivation. *Percept Mot Skills* 24:851-858, 1967.
6. de la Pena A: Toward a psychophysiological conceptualization of insomnia. In: *Sleep Disorders: Diagnosis and Treatment* RL Williams, I Karacan (Eds), New York: Wiley, pp. 101-143, 1978.
7. Monroe JJ: Psychological and physiological differences between good and poor sleepers. *J Clin Psychol* 72:255-264, 1967.
8. Coursey RD: Personality measures and evoked responses in chronic insomniacs. *J Abnorm Psychol* 84:239-249, 1975.
9. Freeman FR: Sleep in patients with organic diseases of the nervous system. In: *Sleep Disorders: Diagnosis and Treatment* RL Williams, I Karacan (Eds), New York: Wiley, pp. 261-283, 1978.
10. Dunleavy DLF, Oswald I, Brown P et al: Hyperthyroidism, sleep, and growth hormone. *Electroencephalogr Clin Neurophysiol* 36:259-263, 1974.
11. Kales A, Heuser G, Jacobson A et al: All night sleep studies in hypothyroid patients, before and after treatment. *J Clin Endocrinol Metab* 27:1593-1559, 1967.
12. Passouant P, Cadilhac J, Baldy-Moulinier M, et al: Etude du sommeil nocturne chez des uremiques chroniques soumis a une epuration extrarenale. *Electroencephalogr Clin Neurophysiol*, 29:441-449, 1970.
13. Pokorny AD: Sleep disturbances, alcohol, and alcoholism: A review. In: *Sleep Disorders: Diagnosis and Treatment*. RL Williams, I Karacan (Eds), New York: Wiley, pp. 233-260, 1978.
14. Hauri P: *The Sleep Disorders* Kalamazoo, Michigan, Upjohn Company, 1977.
15. Kupfer DJ, Foster FG: EEG sleep and depression. In: *Sleep Disorders: Diagnosis and Treatment* RL Williams, I Karacan (Eds), New York: Wiley, 163-204, 1978.
16. Feinberg I, Hiatt JF: Sleep patterns in schizophrenia: A selective review. In: *Sleep Disorders: Diagnosis and Treatment*, R. L. Williams, I Karacan (Eds), New York: Wiley, pp. 205-231, 1978.
17. Williams RL, Karacan I: Introduction. In: *Sleep Disorders: Diagnosis and Treatment*, RL Williams, I Karacan (Eds), New York: Wiley, pp. 1-5, 1978.
18. Broughton RJ: Sleep disorders: Disorders of arousal? *Science* 159:1070-1078, 1968.
19. Jacobsen A, Kales J, Kales A: Clinical and electrophysiological correlates of sleep disorders in children. In: *Sleep: Physiology and Pathology*, A Kales (Ed), Philadelphia: J.B. Lippincott, pp. 109-118, 1969.
20. Jacobson A, Kales A, Lehmann D, et al: Somnambulism: All night electroencephalographic studies. *Science* 144:975-977, 1965.
21. Carwright RD: *A Primer on Sleep and Dreaming* Reading, Massachusetts: Addison-Wesley, 1978.
22. Oppel WC, Harper PA, Rido RV: The age of attaining bladder control. *Pediatrics* 42:614-626, 1968.
23. Gastaut H, Broughton R: A clinical study of episodic phenomena during sleep. In: *Recent Advances in Biological Psychiatry*, J Wortis (Ed), New York: Plenum, pp. 197-221, 1964.
24. Fisher C, Kahn E, Edwards A, et al: A psychophysiological study of nightmares and night terrors: The suppression of stage 4 night terrors with diazepam. *Arch Gen Psychiatry*, 28:252-259, 1973.
25. Thoresen CE, Coates TJ, Zarcone VP, et al: Treating the complaint of insomnia: Self management perspectives. In: *The Comprehensive Handbook of Behavioral Medicine, Volume 4: Systems Intervention*. JM Ferguson, CB Taylor (Eds), New York: Spectrum, pp. 213-234, 1980.
26. Hauri P: Biofeedback techniques in the treatment of chronic insomnia. In: *Sleep Disorders: Diagnosis and Treatment*. RL Williams, I Karacan (Eds), New York: Wiley, pp. 145-159, 1978.
27. Miller P, Chapelli J, Dinello F: Imipramine in the treatment of enuretic school children. *Am J Dis Child*, 17:115, 1968.



# Narcolepsy — A Brief Update

Collin R. Bamford, M.D.  
Dennis D. Patton, M.D.

Narcolepsy is a syndrome the classical symptoms of which are 1) an irresistible urge to sleep, 2) cataplexy (varying from a feeling of weakness to paralysis with falling), 3) hypnagogic hallucinations and 4) sleep paralysis.<sup>1</sup>

The disease is common and if Dement is correct when he claims that almost one in every thousand Americans has narcolepsy,<sup>2</sup> then our own community experience tells us that either the patients are not seeking medical care for this problem, or the symptoms are not being recognized by the first physician contact.

How could we fail to recognize these cases? Not all patients have the classical tetrad, in fact less than 15% do.<sup>3</sup> Other helpful symptoms include automatic behavior with retrograde amnesia,<sup>2,4,5</sup> drowsiness,<sup>3-5</sup> prolonged nocturnal sleep,<sup>4</sup> chronic laziness<sup>2</sup> and, paradoxically, insomnia.<sup>2,5,6</sup> Patients sometimes even complain of transient diplopia.<sup>4</sup> All of these symptoms could be discounted as being functional. As a matter of fact, even observed cataplectic attacks can look very functional and may sometimes be discounted even after being observed by experienced clinical neurologists.

What investigational procedures are currently available to clarify the diagnosis?

**1. Polysomnography:** The patient discontinues all unnecessary medications seven days prior to the study, and arrives at the clinical neurophysiology laboratory two hours prior to his usual bed-time. The technician applies electrodes to the patient's scalp to record the EEG, around his eyes to monitor eye movements, and to

his chin to monitor facial muscle EMG activity. Respiratory and EKG activity are also routinely recorded.

The patient is studied for two consecutive nights. The patient with narcolepsy invariably goes to sleep almost immediately,<sup>7</sup> may have a disturbed night's sleep with frequent awakenings,<sup>7</sup> and may continue to sleep late into the morning unless awakened.

The patient is also studied during the following two days. While being monitored in the same way as described above, the patient is asked on four occasions during each day to attempt to go to sleep. Again on each occasion the narcoleptic goes to sleep too quickly. Richardson, et al.<sup>7</sup> report that an average sleep latency of less than five minutes should be considered pathological, although not necessarily specifically diagnostic of narcolepsy.

A high percentage of narcoleptics, particularly if they have associated cataplexy, pass into REM sleep within 15 minutes of sleep onset.<sup>8,9</sup> It is important to recall 1) that not all narcoleptics exhibit this phenomenon and 2) that any patient on a REM sleep suppressant (amphetamines, hypnotics) will have a REM sleep rebound after recently discontinuing these drugs. Thus, if a patient has not been using REM sleep suppressants, and has sleep onset REM sleep a diagnosis of narcolepsy can be made. If the patient does not have sleep onset REM sleep the diagnosis cannot be ruled out.

**2. Regional cerebral blood flow measured by means of the <sup>133</sup>Xe inhalation technique:** This test works on the principle that a freely diffusible tracer, once introduced into the brain tissue, can leave it only by blood flow; the rate at which it leaves is a quantitative measure of tissue

From: University of Arizona Health Sciences Center, Department of Neurology (Dr. Bamford) and Nuclear Medicine (Dr. Patton), Tucson, Arizona 85724. Reprint requests to Dr. Bamford.

perfusion. Radioactive xenon (Xe-133) is introduced into the brain either by direct intracarotid injection (an invasive technique), or by inhalation or intravenous injection, followed by rebreathing (a noninvasive technique). Since only tracer amounts of xenon are used, there is no physiologic or pharmacologic effect. With the inhalation technique, the patient rebreathes the tracer until an equilibrium level is reached in the head, after which he breathes room air and the rate of disappearance of activity from the head is monitored, either by special probes<sup>10,11</sup> or by a gamma camera.<sup>12,13</sup> This technique has been used to measure regional cerebral blood flow (rCBF) and has proved to be a sensitive technique for measuring blood flow changes, even during ideation.<sup>14</sup> The technique is accurate and reproducible, and the radiation dose is low: 100 millirads to the whole body (natural background radiation: 150 millirads per year). The inhalation technique requires about 30 minutes of patient time. Although noninvasive, it requires a great deal of patient cooperation, and is complex mathematically, requiring a sophisticated computer facility for analyzing the washout data.

Sakai, et al.<sup>15</sup> recently published the results of this very interesting method of studying narcolepsy. They noted that normal control subjects had a lower blood flow in the brainstem and cerebellum when they were in stage I and II sleep than when they were awake. In contrast, patients with narcolepsy had a paradoxically increased blood flow in these same regions during stage I, II and also REM sleep. The same group has contrasted the results obtained from narcoleptics with those obtained from patients with sleep apnea<sup>16</sup> and the distinction persists.

Have there been any recent advances in the treatment of narcolepsy?

Amphetamines should not be used because of their side effects of addiction, tolerance, depression and paranoid psychosis, because of their inability to adequately control cataplexy, and because their combination with imipramine can be potentially dangerous.<sup>6,17</sup>

Methylphenidate continues to be recommended as an effective treatment for sleep attacks or drowsiness. It is relatively free of side effects, and although it is unfortunately marginally effective against cataplexy, it can be safely combined with imipramine.<sup>6</sup> Dosages given vary from 5 mg po TID<sup>6</sup> to 20 mg po QID.<sup>3</sup>

Imipramine is highly effective for the treatment of cataplexy in low dosage (75 to 100 mg/day).<sup>6</sup>

### New Approaches:

Propranolol in a dose of 240 to 480 mg per day reduced sleepiness and sleep attacks, but was ineffective against cataplexy.<sup>18</sup>

Mazindol, a tricyclic sympathomimetic agent, was administered to narcoleptics in a dosage varying from 3 to 8 mg daily, it was effective against sleepiness and sleep attacks, but not against cataplexy.<sup>19</sup>

Gammahydroxybutyrate is a short chain fatty acid with a hypnotic effect. (1.5 gm to 2.25 gm po was given HS, 1.0 gm to 1.5 was repeated with a major awakening.) This produced less nocturnal awakenings, daytime sleep attacks and cataplexy.<sup>19</sup>

Clomipramine is a tricyclic antidepressant and REM sleep inhibitor which may be given in a dose varying from 10 to 100 mg per day. It appears to be more effective in the treatment of cataplexy, sleep paralysis and hypnagogic hallucinations than imipramine.<sup>21</sup>

Benzodiazepines given at bedtime reduce the frequency of nocturnal awakenings (Diazepam 10-15 mg HS<sup>6</sup>).

Gammahydroxybutyrate and Clomipramine are not available in the United States.

### References

1. Yoss R, Daly D: Criteria for the diagnosis of the narcoleptic syndrome. *Proc Staff Meeting Mayo Clinic* 32:320-328, 1957.
2. Dement W, Carskadon M, Ley R: The prevalence of narcolepsy. *Sleep Research* 2:147, 1973.
3. Yoss R, Daly D: Narcolepsy. *Med Clin of N Amer* 44:953-968, 1960.
4. Granada W: The narcolepsy syndrome. *Neurology (Minneapolis)* 8:487-496, 1958.
5. Roth B: Narcolepsy and hypersomnia. In: *Sleep Disorders, Diagnosis and Treatment*. William & Karacan (Eds), John Wiley & Sons, New York, Chapt. 3, pp. 29-59, 1978.
6. Zarcone V: Narcolepsy: *NEJM* 288:1156-1166, 1973.
7. Richardson G, Carskadon M, Flagg W, Vanden Hoed J, Dement W, Mitler M: Excessive daytime sleepiness in men: Multiple sleep latency measurement in narcoleptic and control subjects. *EEG and Clin Neurophysiol* 45:621-627, 1978.
8. Rechtschaffen A, Wolpert E, Dement W, Mitchell S, Fisher C: Nocturnal sleep of narcoleptics *EEG and Clin Neurophysiol* 15:599-609, 1963.
9. Dement W, Rechtschaffen A, Gulevich G: The nature of the narcoleptic sleep attack. *Neurology* 16:18-33, 1966.
10. Obrist WD, Thompson HK, King CH, Wang HS: Determination of regional cerebral blood flow by inhalation of 133-xenon. *Circulation Research* 20:124-135, 1967.
11. McHenry LC, Merory J, Bass E, Stump DA, Williams R, Witcofski R, Howard G, Toole JF: Xenon-133 inhalation method for regional cerebral blood flow measurements: Normal values and test-retest results. *Stroke* 9:396-399, 1978.
12. Heiss WD: Regional cerebral blood flow measurement using a scintillation camera. *Clin Nucl Med* 4:385-396, 1979.
13. Guldberg C, Karle A, Jorgensen PB: Anger camera imaging of perfused and nonperfused brain tissue with intra-arterial <sup>133</sup>xenon technique. *Eur J Nucl Med* 2:205-215, 1977.
14. Ingvar DH, Philipson L: Distribution of cerebral blood flow in the dominant hemisphere during motor performance. *Ann Neurol* 2:230-237, 1977.
15. Sakai F, Meyer J, Daracan I, et al: Narcolepsy: Regional cerebral blood flow during sleep and wakefulness. *Neurology (Minneapolis)* 29(1):61-7, 1979.
16. Meyer JS, Sakai F, Karacan I, et al: Sleep apnea, narcolepsy, and dreaming: Regional cerebral hemodynamics. *Ann Neurol* 7(5):479-485, 1980.
17. Dement W, Carskadon M, Guilleminault C, Zarcone V: Narcolepsy, diagnosis and treatment. *Primary Care* 3(4):609-623, 1976.
18. Kales A, Soldatos C, Cadieux R, et al: Propranolol in the treatment of narcolepsy. *Ann Intern Med* 91(5):741, 743, 1979.
19. Parkes J, Schachter M: Mazindol in the treatment of narcolepsy. *Acta Neurol Scandiv* 60:250-254, 1979.
20. Broughton R, Marmelak M: Effects of nocturnal gamma-hydroxybutyrate on sleep/waking patterns in narcolepsy - cataplexy. *Can J Of Neurol Sci* 7(1):23-31, 1980.
21. Chen C: The use of clomipramine as a REM sleep suppressant in narcolepsy. *Postgrad Med J* 56 Suppl., 1, 86-89, 1980.



# Sleep Disturbance in Psychiatric Disorders

John S. LaWall, M.D.

## Abstract

New information about sleep symptoms in psychiatric illness has become available in recent years. Old ideas about the nature of such symptoms have not always been supported by sleep laboratory findings. Clinically relevant findings regarding sleep in psychiatric illness and its treatment are presented.

## Introduction

While it has long been recognized that symptoms relating to sleep are frequently associated with psychiatric disorders, sleep in psychiatric patients has only recently been studied using the technology of the sleep laboratory. This paper will present a summary of clinically relevant information about sleep in psychiatric patients commonly encountered in practice.

It is important to point out at the outset that the information obtained in the sleep laboratory is in general not particularly useful in the diagnosis of psychiatric illness at present. Psychiatric diagnosis is still for the most part based on careful history taking, thorough mental status examination and, to some extent, psychological testing. The obvious exceptions in this context are those patients whose history suggest a primary sleep disorder and those whose sleep symptoms persist in the face of adequate psychiatric treatment, suggesting an unusual secondary sleep disorder or an intercurrent primary one. While it might be hypothesized that a considerable amount of psychiatric illness is, in fact, secondary to sleep difficulties, it is thought that for the most part the symptoms in connection with psychiatric illness are secondary problems.<sup>1</sup>

Before proceeding to a discussion of sleep disturbance in various psychiatric disorders, a few words about terminology are in order. As pointed out by Hauri,<sup>2</sup> there has been considerable confusion in the terminology of sleep disorders in the past and many common terms are somewhat vague. Insomnia, for example, denotes inability to sleep but is used to label a variety of complaints. An absolute inability to sleep is only encountered in severe and rare brain disorders.<sup>2</sup> As a symptom, insomnia is commonly divided into difficulty falling asleep, waking up during sleep or mid sleep insomnia, and early morning awakening, early final awakening or terminal insomnia. The term, hypersomnia, may apply to the phenomenon of excessive daytime sleepiness or the fact of greatly increased total sleep time. Other terms beyond the scope of this paper are used in connection with other primary sleep disorders. Parasomnias are a group of sleep-related symptoms or phenomena such as sleep walking or somnambulism. For a more complete discussion of the terminology used in the study of sleep disorders, the reader is referred to Williams and Karacan<sup>3</sup> and to the classification of sleep disorders recently published by the Association of Sleep Disorders Centers.<sup>4</sup>

Sleep disturbance and symptoms related to sleep are quite prevalent in the general population. Many studies have been undertaken to determine the frequency of sleep complaints. A recent cross sectional survey reported by Bixler and others<sup>5</sup> found that 32% of an urban sample population suffered from insomnia. Other studies summarized by Hauri<sup>2</sup> have suggested that 12% to 15% of the population have sleep difficulties most of the time. Most such epidemiological studies are based on

From: University of Arizona Health Sciences Center, Department of Psychiatry, Tucson, Arizona 85724.

self report. Hypersomnia and parasomnias, although somewhat less common, are significant problems for some individuals.<sup>5</sup> Insomnia in particular is a common finding among psychiatric patients.<sup>5</sup> A survey conducted by Sweetwood et al.<sup>6</sup> found that 74% of the male psychiatric outpatients complained of some type of sleep disturbance as opposed to 25% of non-patient male controls.

When data about sleep is obtained using sleep laboratory technology, the results may disagree with commonly held beliefs about sleep in psychiatric illness, as will be seen later. However, it has been found by Kales and others<sup>1</sup> that patients' sleep complaints are generally accurate, concerning the nature of the sleep difficulty, if not quantitatively accurate. With this caveat in mind, a clinical assessment (historical) of sleep disturbance and sleep complaints can be undertaken in appropriate patients. Some suggest that a "sleep history" is appropriate in each and every patient.<sup>7</sup> Certainly sleep complaints should be sought in those patients we shall later see are likely to have sleep disturbance. Likewise, a psychiatric history and mental status examination are appropriate when sleep disturbance is a presenting complaint. Obviously, the key to eliciting the problem is asking the appropriate question.<sup>7</sup> Technologists notwithstanding, careful history taking will never be replaced by mechanical or other laboratory methods. In eliciting sleep complaints, the first distinction that needs to be made is if the sleep complaint is distinct from the patient's habitual sleep pattern and if it is associated with other symptoms for which medical attention is sought. As has been widely stated, there are individuals referred to as "hyposomniacs"<sup>7</sup> whose apparent need for sleep is much less than the general population. Likewise, in relation to early-morning awakening or terminal insomnia, it is not uncommon to find individuals for whom this has been a consistent and life-long pattern, not necessarily related to pathology. Estimated sleep latency, frequency of awakening, time of final awakening should all be covered with the patient. In the author's experience, it is well to be as open ended in questioning as possible, as with most other types of history taking. It is useful to seek corroboration from the patient's bed partner if possible. It is well known in the case of primary sleep disorders, that the patient may not complain of a prominent symptom such as snoring in sleep apnea.<sup>2</sup> This is probably not as true in secondary sleep disorders but nonetheless should be kept in mind. The effects of environmental variables such as familiarity of surroundings, noise, temperature, type of bed and bed partner should all be kept in mind in assessing the importance of a sleep complaint and its relationship to other symptoms.

### Sleep in Psychiatric Disorders

It is generally accepted that sleep is most commonly disturbed in affective disorders.<sup>8</sup> However, some widely held beliefs about the nature of sleep disturbance in relation to affective illness, particularly depression are

probably not true. Part of the difficulty in determining facts about sleep in depression is the difficulty in classifying depression; that is to say, depressions represent a heterogeneous group of disorders. Although this was reflected in some previous systems of classifying depression,<sup>9</sup> it remains true using the classification system outlined by DSM-III. While endogenous, reactive, neurotic and other categories are no longer used because of difficulty with these categories, the wide variety of depressive illness remains to be adequately classified. The author<sup>10</sup> has proposed that depressed patients might be divided into two groups; those amenable to biological treatment; e.g., drugs and use of electroconvulsive therapy, and those who are not. At any rate, it is agreed that sleep is disturbed in depression. Such disturbance essentially consists of difficulty falling asleep, difficulty staying asleep and early morning awakening as well as hypersomnia or excessive daytime sleepiness. Beck<sup>11</sup> states that sleep disturbance is common in depression and is the complaint of 60% of the mildly depressed patients and 87% of severely depressed patients, being the most common complaint in the latter group. A more recent survey by Mezzich and Raab<sup>12</sup> showed that 56% in a sample of depressed Americans slept less than five hours a night. Of some interest was the finding that initial insomnia and interrupted sleep were both reported by 78% of the sample, whereas early morning awakening was only reported by 47%. When the sleep of depressed patients is studied in the laboratory, it is also clear that the type of sleep complaint does not distinguish depressive subtypes. This is not to say that all depressed people have the same sleep complaints. It has been demonstrated that sleep is more fragmented in severely depressed patients than in moderately depressed patients.<sup>13</sup> It has been proposed that careful analysis of sleep in depressed patients, beyond determinations of time and sleep stages and type of insomnia, may reveal subtypes of depression better than other symptom clusters have.<sup>14</sup> Presently, in addition to findings of disturbed sleep and lower sleep time in most severely depressed patients, it is agreed that total stage IV sleep or delta sleep tends to be decreased in depressed patients, especially when compared to rapid eye movement (REM) sleep which may be increased or at least increased on proportion. There is also a tendency among some depressed patients to get more REM sleep at the beginning of a night's sleep than at the end as in normal controls.<sup>13</sup> Turning to the complaint of hypersomnia, excessive sleeping or sleepiness, Akiskal and others<sup>15</sup> have found that as many as 55% of so-called characterologically depressed patients suffer from this complaint. It is interesting to note that these were so-called characterologically depressed patients who nonetheless responded to tricyclic antidepressant medication. In summary then, while depressed people have sleep complaints, not all are insomniacs and no one type of insomnia clearly distinguishes a group of depressed patients. As suggested earlier, it may be that



sleep difficulty of some kind in depression is a sign of potential response to biological treatment.

The sleep of manic patients is impaired from the standpoint of total sleep time. Although difficult to study, manic patients probably have less REM sleep and also relatively less delta sleep.<sup>8</sup>

Sleep findings related to schizophrenic illness, while somewhat diverse, are also disappointing. Little consistent relationship to REM sleep has been noted in schizophrenics, and sleep complaints, while they occur, are not diagnostic. Stage IV or delta sleep is low in some schizophrenics, as in some depressives, although the significance of this finding is unclear.<sup>16</sup> Clinicians frequently encounter acutely psychotic schizophrenic patients who are sleep deprived. It is uncertain what the relationship of sleep deprivation is to the psychotic process, although short term sleep deprivation appears to produce little ill effect on chronic schizophrenics.<sup>17</sup> Some REM sleep deprived schizophrenics may show little REM rebound.<sup>16</sup> Poor sleep in acutely psychotic individuals, therefore, may have a neurochemical basis, although this may be a behaviorally mediated symptom; that is to say, that a psychotic and, in particular, a paranoid individual may avoid sleep because of anxiety and agitation.

The anxiety disorders have not been carefully studied in relationship to sleep symptoms. While patients with generalized anxiety disorder, obsessive compulsive disorder and others, may occasionally complain of sleep symptoms, Beutler and others<sup>3</sup> were unable to find "a direct relationship between anxiety and sleep latency."

At least as important, if not more so, than sleep symptoms in psychiatric illness is the effect of psychoactive medications and alcohol on sleep. Sleep effects related to drugs and alcohol are seen in terms of the abuse of drugs and also are seen following the use of drugs for the treatment of psychiatric illness. Drugs used specifically for the treatment of sleep complaints probably cause more difficulties than they cure and are probably at best ineffective with long-term use.<sup>2</sup> Considerable evidence has been accumulated relating to the effect of drugs primarily considered as sedatives or hypnotics and alcohol. All such drugs cause impairments of the amount, frequency and duration of REM sleep as well as, to some extent, producing fragmented, disturbed sleep as revealed through study in a sleep laboratory. Problems with these drugs are of special significance since they may, indeed, produce seemingly favorable pharmacological effects on reducing sleep latency. In patients who complain of insomnia, such effects may appear to continue to benefit the sufferer, albeit, on a placebo basis. The abstinence states produced by withdrawal of such medication (and alcohol) in the tolerant patient, exemplified by delirium tremens, can be seen in large measure, as REM rebound phenomena.<sup>18</sup> Drugs primarily classed as hypnotics or sedatives should be used with extreme caution since they can obscure diagnosis in a sleep disturbed patient and in the long run cause greater problems than no treatment.<sup>2</sup>

It is probably less well known that sleep disturbance can be a concomitant of otherwise effective pharmacological treatments in psychiatric illness. Of particular note are the effects of tricyclic antidepressants on sleep. Myoclonic jerks and nightmares, a function of REM rebound,<sup>18</sup> are seen with tricyclic antidepressants. Typically, when the patient complains of nightmares, the patient has decreased the dose of the drug or stopped it entirely. In the author's practice, some patients will complain of alterations in dreaming while undergoing treatment. This is understandable on the basis that psychotropic drugs suppress REM sleep to some extent. Patients even complain of the absence of dreaming, seeing this as a negative phenomenon or something that bodes ill for them. It should be pointed out that there is no evidence to suggest that REM sleep deprivation per se has profound negative effects on people. In fact, such deprivation has been used as an effective treatment in unipolar depressive patients.<sup>13</sup>

In summary, the advent of and proliferation of the sleep laboratory has led to a considerable increase in knowledge of sleep disturbance in psychiatric disorders. Unfortunately, such information has not always been consistent with previous held beliefs and, as is often the case with new methods of study in human biology, more questions have arisen than have been answered. It is clear, however, that the clinician must be even more cognizant of the importance of sleep symptoms in psychiatric illness and also of sleep symptoms being produced by psychopharmacological agents.

#### References

1. Kales A, Kales JD, Bixler EO: Insomnia: An approach to management and treatment. *Psychiatric Annals* 4:14-22.
2. Hauri P: The sleep disorders. *Curr Concepts* The Upjohn Co. 1977.
3. William RL, Karacan I: Sleep disorders: Diagnosis and treatment. John Wiley and Sons, 1978.
4. Diagnostic classification of sleep disorders. Association of sleep disorders centers. Association of psychophysiological study of sleep. *Sleep* 1-154, 1979.
5. Bixler EO, Kales A, Soldatos CR, et al: Prevalence of sleep disorders. *Am J Psychiatry* 136:1257-62.
6. Sweetwood HL, Kripke DF, Grant I, et al: Sleep disorders and psychobiological symptomatology in male psychiatric outpatients and male non-patients. *Psychosom Med* 38:373-78, 1976.
7. Kales A, Soldatos C., Kalect JD: Taking a sleep history. *Am Fam Physician* 22(2):101-7, 1980.
8. Hauri P: Sleep in dpression. *Psychiatric Annals* 4:24-31, 1974.
9. Diagnostic and Statistical Manual of the American Psychiatric Association. 1968.
10. LaWall J: Unpublished manuscript.
11. Beck AT: The Diagnosis and Management of Depression. Univeristy of Pennsylvania Press, 1973.
12. Mezzich JE, Raab ES: Depressive symptomatology across the Americans. *Arch Gen Psychiatry* 37(7):818-823, 1980.
13. Hawkins DR: Sleep and depression. *Psychiatric Annals* 29:13-28, 1979.
14. Kupfer J: REM latency: A psychobiologic marker for primary depressive disease. *Biol Psychiatry* 11:159-174, 1977.
15. Akiskal HA, Rosenthal TL, Haykal RF et al: Characterological depression *Arch Gen Psychiatry* 37:777-783, 1980.
16. Zarcone VP: Sleep and schizophrenia. *Psychiatric Annals* 9:29-40, 1979.
17. Ware JC: The symptom of insomnia; Causes and cures. *Psychiatric Annals* 9:27-49, 1979.
18. Oswald I: Drug research and human sleep. *Prog Drug Res* 22:355-72, 1978.



ARMA



Editorials

## Hyperthermia in Cancer Therapy

**President**

**Clyde W. Kurtz, M.D.**

**President-Elect**

**John E. Oakley, M.D.**

**Vice President**

**Neopito L. Robles, M.D.**

**Secretary**

**Earl J. Baker, M.D.**

**Treasurer**

**Clifford D. DeBenedetti, M.D.**

**Past President**

**John T. Clymer, M.D.**

**Executive Director**

**Bruce E. Robinson**

**Publishing Committee**

**Marshall B. Block, M.D., Chairman**

**Burnell R. Brown, M.D.**

**George E. Burdick, M.D.**

**Kenneth B. Desser, M.D.**

**Benjamin K. Harris, M.D.**

**Jonathan M. Levy, M.D.**

**William B. McGrath, M.D.**

**Jay W. Smith, M.D.**

**Sidney C. Werner, M.D.**

It has been four years since our initial publication in *Arizona Medicine* discussing the historical perspectives, biological rationale, physics and clinical application of hyperthermia in cancer therapy. This discussion appeared in *Arizona Medicine*, January 1977. Patient and physician inquiries are frequent so an update is appropriate. Since 1977, the clinical hyperthermia trials have been assessed in over 100 patients having a variety of malignancies at various anatomic sites. This is one of the largest Phase I pilot studies, on human subjects, to assess efficacy and toxicity of hyperthermia treatment either alone or in combination with radiation. This work represents the major effort of the biologists, physicists, radiation oncologists, and medical oncologists at Arizona Health Sciences Center as well as many skilled investigators on the main campus of the University of Arizona.

All the patients entered in the study have had recurrent cancers in accessible areas for heating by various techniques. Microwave and radiofrequency heating have been used more frequently than other techniques, such as water bath heating of extremity lesions. Our group of patients have had large recurrent lesions in various sites including head and neck, breast, extremities, pelvis and perineum. Both carcinomas and sarcomas are represented. All patients had previously failed standard therapy including surgery, tolerance doses of radiation, as well as chemotherapy. Informed consent was obtained on all patients.

The results obtained in this pilot study have been very promising. In a group of 15 patients treated with heat alone, 30% showed either partial or complete response. Toxicity was minimal, manifested by little more than sensations of heat in the local area during treatment. Although the responses alone were of a transient nature, they certainly indicated that heat definitely had an anti-cancer effect. The best results to date have been obtained when heat was combined with

very modest doses of radiation. In this group of patients, an 80% response rate was noted with 30% achieving a relatively long-lasting or complete regression in the treated area. One group of patients that is quite unique is composed of those who had an interstitial implant which served not only as the heating device but which delivered low dose radiation to a specified tumor site. In this group of patients a 90% response rate was noted with approximately 60% of the patients achieving complete disappearance of the tumor with long lasting remissions.

The temperature utilized was approximately 43°C (112°F) given for approximately 30 minutes. The number of heat treatment fractions varied from one, in implant patients, to approximately six in those utilizing external microwaves or radiofrequency techniques. The doses of radiation were exceptionally low, varying from 2000 to 3000 rads. These good results and minimal side effects, certainly suggest that hyperthermia may play a significant role in future cancer therapy, specifically in the treatment of locally advanced malignancies.

The clinical work along with the excellent biological studies and physicists' support have placed the Arizona Health Sciences Center in the forefront of hyperthermia research. The work has received national and international recognition and tremendous support from local, state, and national funding agencies. The patients treated have come from physicians within the state of Arizona. We thank you for your efforts in this regard.

The place of hyperthermia in cancer therapy is not yet known. However, the preliminary results will certainly guide us into future Phase II and Phase III studies to assess the ultimate role in the treatment of cancer.

**Michael R. Manning, M.D.**  
Assistant Professor of Radiology  
Division of Radiation Oncology

**Louis J. Kettel, M.D., Dean**  
College of Medicine



## Auxiliary Highlights

### Communication Was. . . . The Name of the Game

The theme for this Fifty-first Arizona Medical Association Auxiliary Year has been "Facets of Communication." The importance of good communication within the families, within the Auxiliaries, with the medical societies, and with the public has been stressed throughout the year. Because good communication is the basis of any good relationship, the Auxiliary worked hard this year to accomplish its goal of becoming a better communicator and a more avid listener.

To develop better two-way communication and understanding between the state and county Auxiliaries, the ArMA Auxiliary had its largest Board of Directors this year.

The ArMA Auxiliary held a very successful Fall Leadership Conference in Sedona. At this conference, our state and county officers and chairmen were given training on how to communicate more effectively by our own talented public relations committee. Our members learned how to use graphics wisely and also attended speakers training classes. A cost containment workshop was also held.

We worked hard to keep our members informed through our newsletter, the *Caduceus Crier*. To keep physicians informed about all the health-promoting projects the Auxiliaries accomplished, the excellent "Arizona Highlights" articles for *Arizona Medicine* were written. And the first State Auxiliary Handbook was developed to assist our state and county officers and committee chairmen in their leadership roles.

In legislation, a state auxiliary member attended ArMA's Legislative meetings. The Auxiliary-developed H.S.A. slide program was used in various counties, H.S.A. monitoring was encouraged and our members were kept informed about health legislation.

Our state and county membership chairmen have all worked hard to retain members. The State Auxiliary did get

three new members-at-large from Globe and we welcome them.

Our AMA-ERF state and county chairmen have used many innovative ideas this year to give Arizona its largest ever donation to AMA-ERF, \$20,150. The Auxiliary-developed AMA-ERF slide show has been used to better inform our medical community how these funds are used at our medical school.

The Health Projects Committee has had a very busy year. The ArMA Auxiliary again printed the informative "Is He Sick? Shall I Send Him to School?" brochures and the Auxiliaries distributed these to schools around the state. For the first time, these brochures were printed in Spanish as well as English and were well appreciated by our Spanish populous. Over sixty doctors requested these brochures for their offices along with two hospitals and several health organizations. Over seventy school nurses requested these brochures and then reprinted them by the thousands for their parents.

The State Auxiliary and interested County Auxiliaries worked together to donate "Early Start to Good Health" kits to the majority of public schools in Arizona. Using filmstrips, posters and game sheets, kindergarden through third grade students are being taught about their physical and emotional health and that they have important health choices to make. Included in these kits are letters that will hopefully go to thousands of parents each year which states, "Please review these Health Rules with your child that he has been studying. Doctors and their spouses care about the health of your child!"

To better publicize the ArMA Auxiliary's concern and interest in the good health of the community, the State Auxiliary designed its first health projects logo to be used on these letters and kits and all other health projects material.

To continue working for better health of children, the ArMA Auxiliary has a representative attending meetings of the new Arizona School Health Association. This is an association of health professionals and health-oriented organizations whose primary goal is to get comprehensive health education into all levels of Arizona schools.

To continue working for better health of our own medical community, the ArMA Auxiliary, co-sponsored with ArMA and others the successful Camelback Hospital's Seminar, "Physician in Stress and Distress." Over two hundred attendees found this seminar worthwhile.

Under the "Facets of Communication"

theme, the Auxiliary set up a convention full of educational workshops. These workshops hopefully hold the keys to good communication with the public and with our own families.

Dr. Steve Shanfield, a psychiatrist from the University of Arizona Medical School was an additional panelist that joined Mr. Mort Enright and Mrs. Marty Squires in the "Patient Communication Workshop."

Another of our workshops was "Sudden Death of Your Physician Spouse - Now What?", with over 55 attendees present. The state Auxiliary developed the first Arizona Physician's Survivor Information Handbook and this handbook was given out at this workshop. It is available through ArMA now. Over 110 physicians and spouses heard Dr. Charles Kerr discuss "Communication in Marriage" and over 65 attendees received beneficial information from Dr. and Mrs. Robert Cotton at the "Parent-Teenager" workshop. Fifty-six participants received first-hand knowledge of biofeedback and knowledge about "Living with Stress."

The most important Auxiliary communication is done by our industrious county Auxiliaries! They are the closest to the needs and desires of their people and have been communicating. They have been busy all year with various projects such as:

1) Monitoring H.S.A.'s, 2) eye screening, 3) blood drives, 4) gifts to the elderly, and 5) mobile meals.

They have been teaching such classes as:

1) C.P.R., 2) Nutrition, 3) home safety, 4) breast self exam, 5) G.E.M.S. babysitting, and 6) parent study classes on drug abuse.

They have held various well-attended workshops for the public on such topics as:

1) Rape, assault and family violence, 2) parenting, and 3) dieting.

They have also sponsored 6,000 meter runs and worked at health fairs.

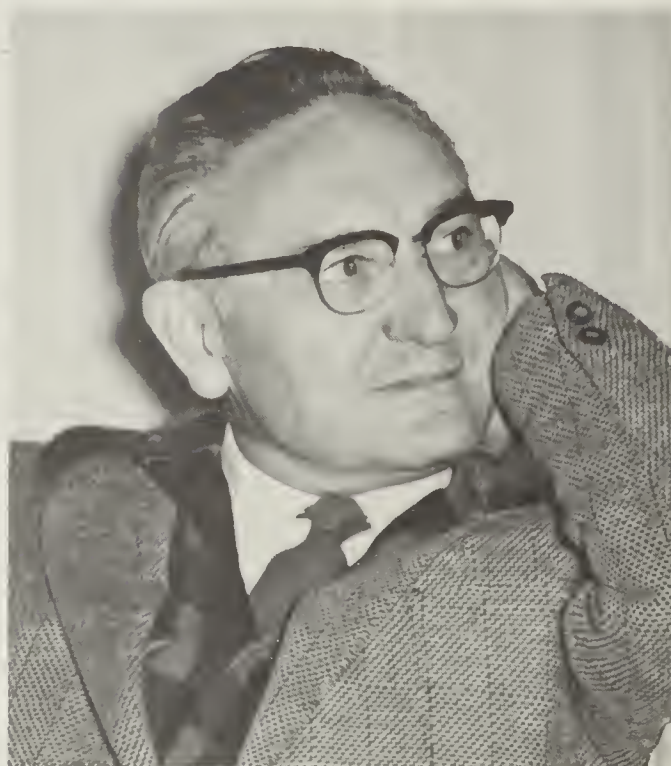
They have had fund raisings to benefit: 1) Their hospitals, 2) the Ronald McDonald House in Tucson, 3) the Kidney Foundation, 4) Hospice, and 5) AMA-ERF and other scholarship funds.

Our state and county Auxiliaries have communicated their love and concern for their fellow man by giving thousands of volunteer hours to these health-promoting projects. Our Auxiliaries are communicating and have made Arizona a better place.

Joyce Newman, President  
ArMA Auxiliary



**Zenas B. Noon, M.D.**  
**1905 - 1981**



**Editor**  
**Marshall B. Block, M.D.**

**Associate Editors**  
**Kenneth Desser, M.D.**  
**C. Herbert Fredell, M.D.**  
**Warren Gorman, M.D.**

**Editorial Board**  
**Thomas E. Blittker, M.D.**  
**John R. Green, M.D.**  
**John W. Kennedy, M.D.**  
**William B. McGrath, M.D.**  
**Arthur R. Nelson, M.D.**  
**Charles Nugent, M.D.**  
**Eric Prosnitz, M.D.**  
**Sydney Salmon, M.D.**  
**Lawrence Stern, M.D.**

**Managing Editor**  
**Bruce E. Robinson**

**Editorial Assistant**  
**Joan M. Alexander**

Life-long Nogales resident, Dr. Zenas B. Noon, M.D., passed away on April 27, in Botswana, Africa while on a Safari vacation trip with his wife, son and daughter-in-law.

Dr. Noon was born in Nogales May 20, 1905, the son of Mr. and Mrs. E. E. Noon, a pioneer Nogales family. He was a graduate of the Nogales Public Schools and attended the University of Arizona and the University of Southern California, receiving his M.D. degree from the Medical College of Virginia. His medical internship was at the University of Michigan, Ann Arbor, Michigan, and his surgical residency at the University of Pennsylvania.

In the 1930s, before he established his practice in Nogales, he was appointed medical director of the Transient Camp and founded its hospital facility. In 1933 he began his practice and on December 21, 1933 he was married to Mary King of Easaton, Pa.

During the war years, 1942 to 1946, he served his country as a physician in the U.S. Army Medical Corps. Dr. Noon was active in his community as well, serving as physician for the Nogales Volunteer Fire Department. He was charter member of the Nogales Lions Club and a

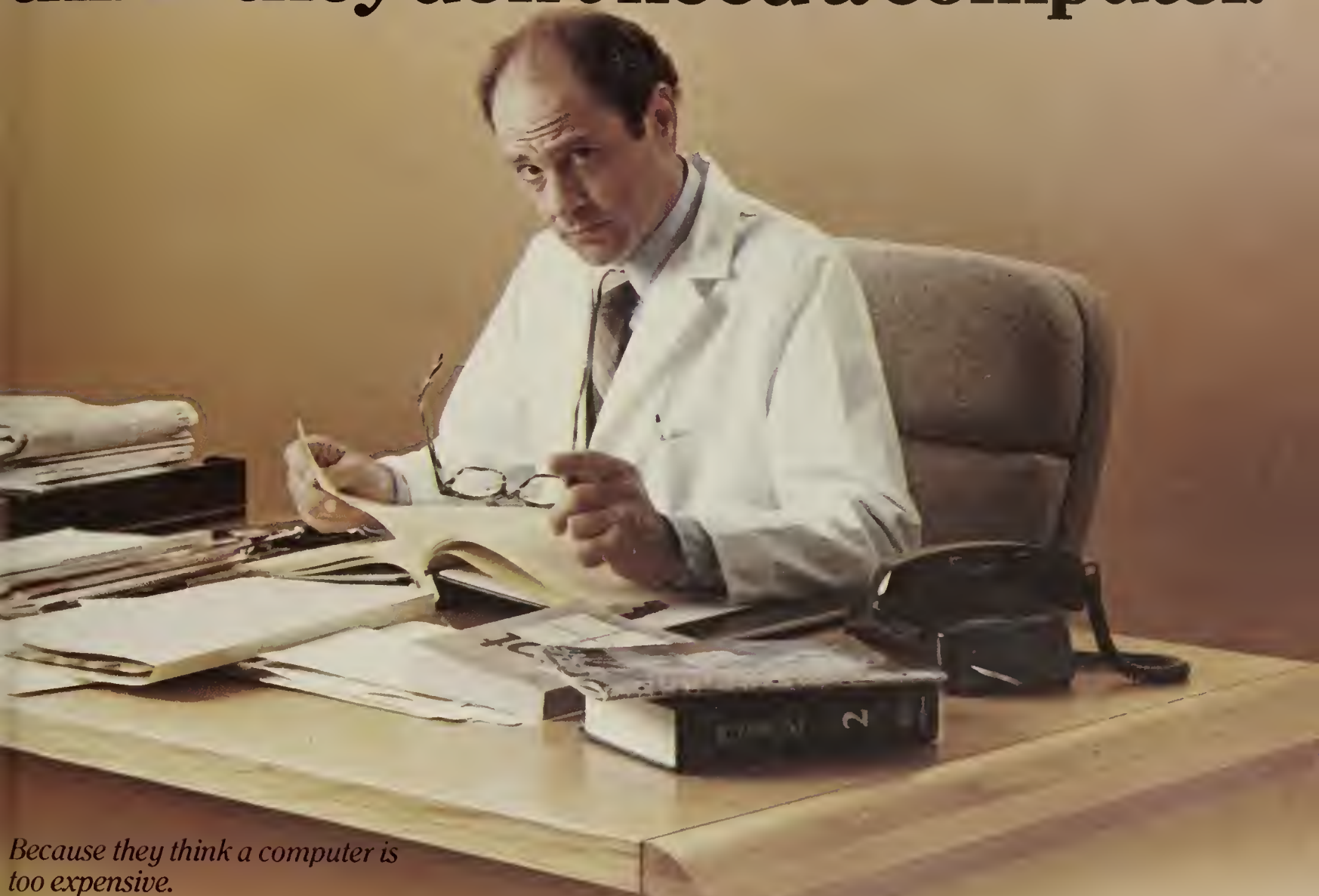
life member of the Nogales Elk's Lodge.

Dr. Noon was active in organized medicine. He was a member of the American Medical Association, the Arizona Medical Association, and served as president of the Santa Cruz County Medical Society in 1953. He was a Fellow of the American College of Surgeons and the Southwest Surgical Congress. From 1955 to 1961 he was a member of the State Board of Medical Examiners, serving as its president from 1958 to 1961. He also served on the Arizona Industrial Commission Review Board. During the 89th Annual Meeting of the Arizona Medical Association, 1980, he was honored with a plaque commemorating his 50 years of active practice. He was still in active practice at the time of his death.

In addition to his wife Dr. Noon is survived by his sons: Zenas B. Noon, Jr., Ph.D. of San Diego, George Paul Noon, M.D. of Houston, and Edward Noon of San Francisco. Daughters: Diane, Mrs. Lee Matsch of Tempe, Sylvia, Mrs. Amos Ilan of New York City, and Madeline, Mrs. Rena Arriaga of Tucson. Sisters: Madeline, Mrs. J.S. Gonzalez and Mrs. Gwendolyn Barton both of Nogales and 13 grandchildren.



# We're looking for doctors who think they don't need a computer.



*Because they think a computer is too expensive.*

The Sequoia Medical System™ can pay for itself:

- Increased collections
- Decreased receivables
- Improved staff efficiency

*Because they think they already have firm control of their billing.*

The Sequoia Medical System automatically processes billing paperwork:

- Patient statements
- Third party claims
- Collection letters

*Because they think they have easy access to vital practice data.*

The Sequoia Medical System provides information immediately:

- Aged receivable reports
- Procedure and diagnosis analysis

- Daily production and revenue analysis
- On-line access to 4½ million medical journal articles in the National Library of Medicine
- And many other forms of essential data

*Because they think a computer is administratively disruptive.*

The Sequoia Medical System is designed to blend smoothly into solo and small group practices:

- Easy to use
- Pre-programmed, turn-key system

- Includes training, installation, local service and support.

*Because they haven't seen a Sequoia Medical System.*

Sequoia can provide more time for health care in your practice. While it's taking care of business... you're taking care of patients.

Start looking into the benefits of a computer today by calling Sequoia Group. Call toll free (800) 227-2360; in California (800) 772-2655... or write for our brochure.

**SEQUOIA GROUP**™  
I N C O R P O R A T E D

1100 Larkspur Landing Circle, Larkspur, CA 94939

Atlanta, Birmingham, Boston, Buffalo, Charlotte, Chicago, Cleveland, Columbus, Dallas, Denver, Detroit, Hartford, Houston, Indianapolis, Irvine, Kansas City, Los Angeles, Memphis, Miami, Minneapolis, Nashville, New Orleans, New York City, Norfolk, Oklahoma City, Philadelphia, Phoenix, Pittsburgh, Portland, Salt Lake City, San Diego, San Francisco, Seattle, St. Louis, Tampa, Washington, D.C.

# Ready to teach home nursing, first aid, parenting, child care, water safety, CPR.

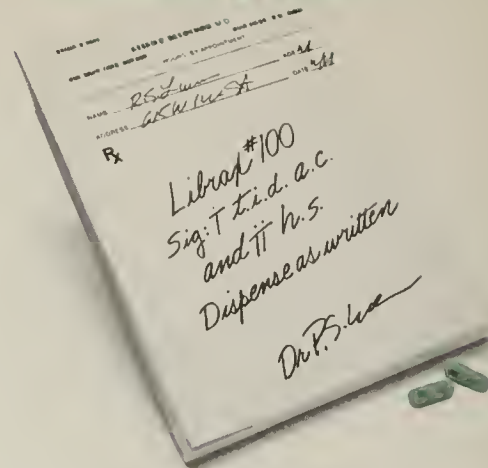
Red Cross:  
Ready for a new century.



A Public Service of This Magazine  
& The Advertising Council



## Specify Librax<sup>®</sup>



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows "Possibly" effective as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis. Final classification of the less-than-effective indications requires further investigation.

**Contraindications:** Glaucoma, prostatic hypertrophy, benign bladder neck obstruction, hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium<sup>®</sup> (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage, withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.

As with all anticholinergics, inhibition of lactation may occur

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially, increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression, suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants, causal relationship not established.

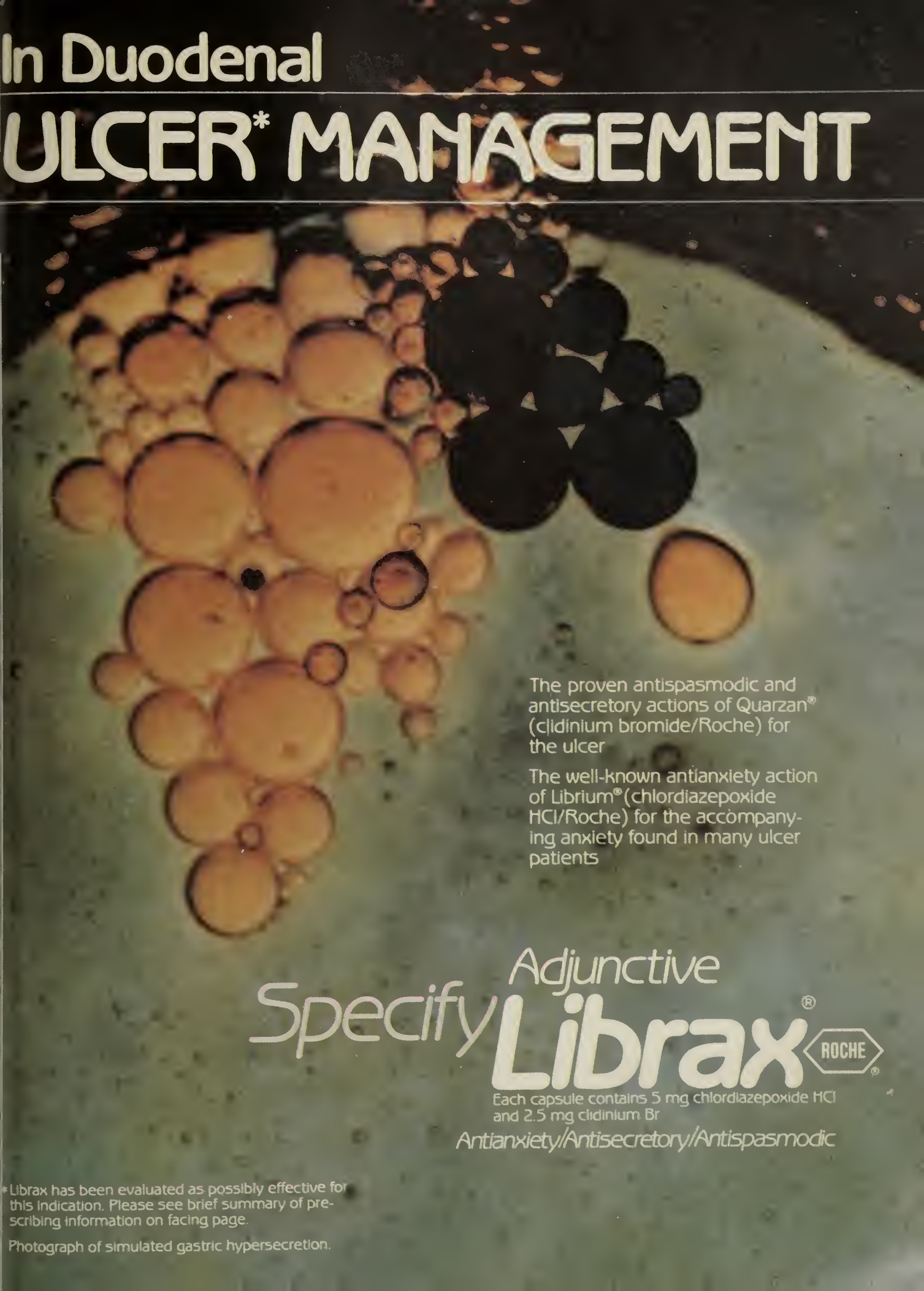
**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated, avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction, changes in EEG patterns may appear during and after treatment, blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.



Roche Products Inc.  
Manati, Puerto Rico 00701



# In Duodenal ULCER\* MANAGEMENT



The proven antispasmodic and  
antisecretory actions of Quarzan®  
(clidinium bromide/Roche) for  
the ulcer

The well-known antianxiety action  
of Librium® (chlordiazepoxide  
HCl/Roche) for the accompany-  
ing anxiety found in many ulcer  
patients

Specify *Adjunctive*  
**Librax®** 

Each capsule contains 5 mg chlordiazepoxide HCl  
and 2.5 mg clidinium Br

*Antianxiety/Antisecretory/Antispasmodic*

\* Librax has been evaluated as possibly effective for  
this indication. Please see brief summary of pre-  
scribing information on facing page.

Photograph of simulated gastric hypersecretion.



Although weight loss achieved in a weight control program varies from patient to patient, this simulated sequence of a professional model illustrates dramatically the benefits of a successful weight loss program.



getting there...



...takes dietary restriction, regular exercise, behavior modification, and sometimes the addition of an effective anorectic.

prescribe

# Tenuate® Dospan® <sup>IV</sup> <sup>c</sup>

(diethylpropion hydrochloride NF)

75 mg. controlled-release tablets

the #1 prescribed anorectic

## An effective short-term adjunct in an indicated weight loss program

Overweight patients in certain diagnostic categories often require strict obesity control. Diethylpropion hydrochloride has been reported useful in obese patients with certain complications. While it is not suggested that Tenuate in any way reduces these complications in the overweight, it may have a useful place as a short-term adjunct in a prescribed dietary regimen. Tenuate should not be administered to patients with severe hypertension; see additional Warnings and Precautions on this page.

## In uncomplicated obesity

Many patients, on the other hand, present with excess fat but no disease. While this condition is often termed uncomplicated obesity, complications of both a social and a psychologic nature may be distressingly real for the patients. In these cases, a short-term regimen of Tenuate can help reinforce your dietary counsel during the important early weeks of an indicated weight loss program.

## Clinical effectiveness

The anorectic effectiveness of diethylpropion hydrochloride is well documented. No less than 18 separate double-blind, placebo-controlled studies attest to its usefulness in daily practice.<sup>1</sup> And the unique chemistry of Tenuate provides "...anorectic potency with minimal overt central nervous system or cardiovascular stimulation."<sup>2</sup> Compared with the amphetamines, diethylpropion has minimal potential for abuse.

**Tenuate—it makes sense.  
And it's responsible medicine.**

# Merrell

Tenuate® <sup>IV</sup>  
(diethylpropion hydrochloride NF)

Tenuate Dospan® <sup>IV</sup>  
(diethylpropion hydrochloride NF)  
controlled-release

AVAILABLE ONLY ON PRESCRIPTION

### Brief Summary

**INDICATION:** Tenuate and Tenuate Dospan are indicated in the management of exogenous obesity as a short-term adjunct (a few weeks) in a regimen of weight reduction based on caloric restriction. The limited usefulness of agents of this class should be measured against possible risk factors inherent in their use such as those described below.

**CONTRAINDICATIONS:** Advanced arteriosclerosis, hyperthyroidism, known hypersensitivity, or idiosyncrasy to the sympathomimetic amines, glaucoma. Agitated states. Patients with a history of drug abuse. During or within 14 days following the administration of monoamine oxidase inhibitors, (hypertensive crises may result).

**WARNINGS:** If tolerance develops, the recommended dose should not be exceeded in an attempt to increase the effect, rather, the drug should be discontinued. Tenuate may impair the ability of the patient to engage in potentially hazardous activities such as operating machinery or driving a motor vehicle; the patient should therefore be cautioned accordingly. *Drug Dependence:* Tenuate has some chemical and pharmacologic similarities to the amphetamines and other related stimulant drugs that have been extensively abused. There have been reports of subjects becoming psychologically dependent on diethylpropion. The possibility of abuse should be kept in mind when evaluating the desirability of including a drug as part of a weight reduction program. Abuse of amphetamines and related drugs may be associated with varying degrees of psychologic dependence and social dysfunction which, in the case of certain drugs, may be severe. There are reports of patients who have increased the dosage to many times that recommended. Abrupt cessation following prolonged high dosage administration results in extreme fatigue and mental depression, changes are also noted on the sleep EEG. Manifestations of chronic intoxication with anorectic drugs include severe dermatoses, marked insomnia, irritability, hyperactivity, and personality changes. The most severe manifestation of chronic intoxications is psychosis, often clinically indistinguishable from schizophrenia. *Use in Pregnancy:* Although rat and human reproductive studies have not indicated adverse effects, the use of Tenuate by women who are pregnant or may become pregnant requires that the potential benefits be weighed against the potential risks. *Use in Children:* Tenuate is not recommended for use in children under 12 years of age.

**PRECAUTIONS:** Caution is to be exercised in prescribing Tenuate for patients with hypertension or with symptomatic cardiovascular disease, including arrhythmias. Tenuate should not be administered to patients with severe hypertension. Insulin requirements in diabetes mellitus may be altered in association with the use of Tenuate and the concomitant dietary regimen. Tenuate may decrease the hypotensive effect of guanethidine. The least amount feasible should be prescribed or dispensed at one time in order to minimize the possibility of overdose. Reports suggest that Tenuate may increase convulsions in some epileptics. Therefore, epileptics receiving Tenuate should be carefully monitored. Titration of dose or discontinuance of Tenuate may be necessary.

**ADVERSE REACTIONS:** *Cardiovascular:* Palpitation, tachycardia, elevation of blood pressure, precordial pain, arrhythmia. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride. *Central Nervous System:* Overstimulation, nervousness, restlessness, dizziness, jitteriness, insomnia, anxiety, euphoria, depression, dysphoria, tremor, dyskinesia, mydriasis, drowsiness, malaise, headache, rarely psychotic episodes at recommended doses. In a few epileptics an increase in convulsive episodes has been reported. *Gastrointestinal:* Dryness of the mouth, unpleasant taste, nausea, vomiting, abdominal discomfort, diarrhea, constipation, other gastrointestinal disturbances. *Allergic:* Urticaria, rash, ecchymosis, erythema. *Endocrine:* Impotence, changes in libido, gynecomastia, menstrual upset. *Hematopoietic System:* Bone marrow depression, agranulocytosis, leukopenia. *Miscellaneous:* A variety of miscellaneous adverse reactions has been reported by physicians. These include complaints such as dyspnea, hair loss, muscle pain, dysuria, increased sweating, and polyuria.

**DOSAGE AND ADMINISTRATION:** Tenuate (diethylpropion hydrochloride) One 25 mg. tablet three times daily, one hour before meals, and in mid-evening if desired to overcome night hunger. Tenuate Dospan (diethylpropion hydrochloride) controlled-release One 75 mg. tablet daily swallowed whole, in mid-morning. Tenuate is not recommended for use in children under 12 years of age.

**OVERDOSSAGE:** Manifestations of acute overdosage include restlessness, tremor, hyperreflexia, rapid respiration, confusion, assaultiveness, hallucinations, panic states. Fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Overdose of pharmacologically similar compounds has resulted in fatal poisoning, usually terminating in convulsions and coma. Management of acute Tenuate intoxication is largely symptomatic and includes lavage and sedation with a barbiturate. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendation in this regard. Intravenous phentolamine (Regitine®) has been suggested on pharmacologic grounds for possible acute, severe hypertension if this complicates Tenuate overdosage.

Product Information as of January, 1980

MERRELL-NATIONAL LABORATORIES, Inc.  
Cayey, Puerto Rico 00633  
Direct Medical Inquiries to  
MERRELL DOW PHARMACEUTICALS, INC.  
Subsidiary of The Dow Chemical Company  
Cincinnati, Ohio 45215  
Licensor of Merrell®

**References:** 1. Citations available on request from Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio 45215. 2. Hoekenga, M. T. et al. A comprehensive review of diethylpropion hydrochloride in Central Mechanisms of Anorectic Drugs, S. Garattini and R. Samanin, Ed., New York: Raven Press, 1978, pp. 391-404.



# THE LEGISLATIVE BEAT

During the first regular session of the 35th Legislature, certain legislation was deemed to be of specific significance to Arizona physicians. Following is a summary of five of ArMA's special interest items and the complete Final Status Report.

## **Chiropractic (SB 1300 and SB 1343; HB 2304 and HB 2450)**

Four different pieces of legislation were introduced. SB 1300 and SB 1343 would have modified the scope of practice in order to keep chiropractors from utilizing laboratory findings. Neither bill was passed because the Board of Chiropractic Examiners promised Senator Robert B. Usdane that they would take care of this matter by rules and regulation. HB 2304 by ex-Senator Wayne Stump which would have allowed accreditation from straight chiropractic schools was vetoed by the Governor.

HB 2450 providing for an update of the unprofessional conduct standards and other administrative modifications of the Chiropractic Practice Act failed to pass the Senate. This Association took no position on HB 2304 or HB 2450.

## **Naturopathy (HB 2116)**

The Naturopathic Practice Act was held in Conference Committee because of our insistence that they had not demonstrated through education and training their ability to practice medicine even with the

exclusion of drugs and surgery. This bill will be back next year.

## **Nurse Practitioners (SB 1196)**

Representative Carl J. Kunasek's committee adopted the clinical pharmacist amendment to the nurse practitioner bill. The Speaker of the House held the bill from debate in Committee of the Whole. Prescribing by allied health practitioners must be dealt with. Therefore, a position must be developed prior to the next legislative session.

## **Homeopathy (HB 2340)**

Steam for a repeal of the Homeopathy Act never really developed, probably because a bill to repeal was never introduced. The Legislative Committee should consider development of a position paper for next year.

## **Midwives (SB 1336)**

The Senate passed a bill which would have allowed for persons not accepting compensation to be lawful midwives in this state without any education or training whatsoever. The bill was held in the house (3rd Reading). This legislation will probably be back next year.

Occupational therapists (SB 1097), zone therapists (HB 2212), family therapists (SB 1370), and a bill allowing additional responsibility to opticians, dispensing (HB a385) never got off the ground but we are sure to see them in the next regular session.

## **FIRST REGULAR SESSION — 35TH LEGISLATURE**

### **FINAL STATUS REPORT**

| <b>ArMA Action</b> | <b>Bill Number</b> | <b>Sponsor</b>  | <b>Title and Status</b>                                                 |
|--------------------|--------------------|-----------------|-------------------------------------------------------------------------|
| Active Support     | SB 1100            | Usdane          | <b>BOMEX Advertising, CME, etc.</b><br><i>Enacted - Chapter 45</i>      |
| General Support    | SB 1025            | Gabaldon & Hull | <b>Breast Reconstructive Surgery</b><br><i>Enacted - Chapter 121</i>    |
| General Support    | SB 1236            | Usdane          | <b>Drug Product Identification</b><br><i>Enacted - Chapter 55</i>       |
| General Support    | HB 2299            | Kunasek, et al  | <b>Crippled Children's Services</b><br><i>Enacted - Chapter 163</i>     |
| General Support    | SB 1003            | Usdane, et al   | <b>Emergency Services Consolidation</b><br><i>Enacted - Chapter 139</i> |
| General Support    | HB 2193            | Holman, et al   | <b>Immunization</b><br><i>Enacted - Chapter 283</i>                     |
| Active Study       | HB 2484            | Barr, Usdane    | <b>State Health Care System</b><br><i>Adopted - Vetoed</i>              |

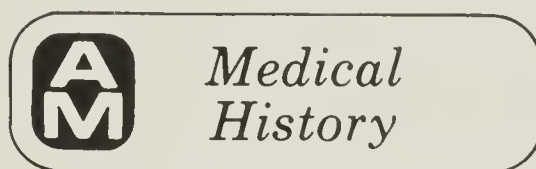


| ArMA Action        | Bill Number        | Sponsor             | Title and Status                                                                                           |
|--------------------|--------------------|---------------------|------------------------------------------------------------------------------------------------------------|
| Active Study       | HB 2475            | Carlson West, et al | <b>Indigent Health Care (5 million bailout)</b><br><i>Enacted - Chapter 261</i>                            |
| Active Study       | SB 1098            | Usdane              | <b>Extension of JUP</b><br><i>Enacted - Chapter 41</i>                                                     |
| Active Study       | HB 2350            | Holman              | <b>Removal of Corneal Tissue</b><br><i>Enacted - Chapter 164</i>                                           |
| Active Study       | HB 2081            | Lewis, et al        | <b>Supervisory Care Homes</b><br><i>Enacted - Chapter 320</i>                                              |
| Non Support        | SB 1073            | Runyan              | <b>Medical Examiner Powers</b><br><i>Amended Satisfactorily - Enacted - Chapter 120</i>                    |
| Non Support        | HB 2461            | Carlson West, et al | <b>C.O.N. Exemption</b><br><i>Amended Satisfactorily - Enacted - Chapter 260</i>                           |
| No Action          | SB 1162            | Gabaldon            | <b>Medical Alert Code - Drivers License</b><br><i>Enacted - Chapter 73</i>                                 |
| No Action          | SB 1235            | Usdane              | <b>Psychologist</b><br><i>Enacted - Chapter 54</i>                                                         |
| No Action          | SB 1367            | Usdane              | <b>Hearing Aid Dispensers</b><br><i>Enacted - Chapter 64</i>                                               |
| No Action          | SB 1209            | Usdane              | <b>Pharmacist Continuing Education</b><br><i>Enacted - Chapter 106</i>                                     |
| No Action          | HB 2304            | Jordon, et al       | <b>Chiropractor Qualifications</b><br><i>Adopted - Vetoed</i>                                              |
| Active Support     | SB 1068            | Swink, et al        | <b>Child Passenger Restraint System</b><br><i>Passed Senate - Held in House (Trans. Cmt.)</i>              |
| General Support    | SB 1070<br>HB 2388 | J. Gutierrez        | <b>Seizure of Property; Subpoenas</b><br><i>Failed in House (COW)</i>                                      |
| General Support    | SB 1196            | Lindeman, et al     | <b>Nurse Practitioner</b><br><i>Amended Unsatisfactorily</i><br><i>Passed Senate - Held in House (COW)</i> |
| General Support    | SB 1097            | Mawhinney & Dunn    | <b>Occupational Therapy</b><br><i>Held in Senate (H&amp;W)</i>                                             |
| General Support    | SB 1300            | Usdane              | <b>Chiropractor; Scope of Practice</b><br><i>Held in Senate (COW)</i>                                      |
| General Support    | SB 1343            | Comm. & Labor       | <b>Chiropractor Regulations</b><br><i>Held in Senate (C &amp; L)</i>                                       |
| General Support    | SB 1336            | Hardt & Cooper      | <b>Midwives</b><br><i>Amended Unsatisfactorily</i><br><i>Passed Senate - Held in House (3rd Reading)</i>   |
| Active Non-support | HB 2128            | Banking & Insurance | <b>Chiropractic Insurance</b><br><i>Passed House - Held in Senate (COW)</i>                                |
| Active Non Support | HB 2113            | TPO                 | <b>Nurse Practitioner</b><br><i>Never Heard</i>                                                            |
| Active Non Support | HB 2116            | TPO                 | <b>Naturopathic Board</b><br><i>Passed House &amp; Senate - Held in Conference</i>                         |
| Active Non Support | SB 1052            | Runyan, et al       | <b>Commerce Department</b><br><i>Never Heard</i>                                                           |
| Active Non Support | HB 2162            | Goudinoff, et al    | <b>Clinical Laboratories</b><br><i>Never Heard</i>                                                         |
| Active Non Support | HB 2340            | Hurigerford, et al  | <b>Homeopathy</b><br><i>Amended - Passed House - Held in Senate (H&amp;W)</i>                              |
| Active Non Support | HB 2212            | Jordon              | <b>Zone Therapist</b><br><i>Never Heard</i>                                                                |

| <b>ArMA Action</b> | <b>Bill Number</b> | <b>Sponsor</b>                       | <b>Title and Status</b>                                                              |
|--------------------|--------------------|--------------------------------------|--------------------------------------------------------------------------------------|
| Active Study       | HB 2205<br>SB 1172 | Morales, et al                       | <b>Medicaid</b><br><i>See HB 2484</i>                                                |
| Active Study       | HB 2243            | Morales                              | <b>Definition of Indigent</b><br><i>See HB 2484</i>                                  |
| Active Study       | SB 1007            | Usdane, et al<br>Carlson West, et al | <b>Health Care Cost Containment Plan</b><br><i>See HB 2484</i>                       |
| Active Study       | SB 1008            | Usdane, et al<br>Kunasek, et al      | <b>Indigent Health Care (majority)</b><br><i>See HB 2484</i>                         |
| Active Study       | SB 1261            | Mack, et al                          | <b>Medicaid Repeal</b><br><i>See HB 2484</i>                                         |
| Active Study       | SB 1297            | Usdane                               | <b>Medicare Premium Payment</b><br><i>See HB 2484</i>                                |
| Active Study       | SB 1385            | Osborn & Abril                       | <b>Indigent Health Care (Governor's)</b><br><i>See HB 2484</i>                       |
| Active Study       | SB 1408<br>HB 2470 | Osborn, et al<br>Abril, et al        | <b>Capitated Medicaid Aid (Minority)</b><br><i>See HB 2484</i>                       |
| Active Study       | HB 2244            | Morales                              | <b>Indigent Nursing Care</b><br><i>See HB 2484</i>                                   |
| Active Study       | HB 2242            | Morales, et al                       | <b>Catastrophic Medical Cost</b><br><i>See HB 2484</i>                               |
| Active Study       | HB 2476            | Carlson West, et al                  | <b>Indigent Health Care</b><br><i>See HB 2484</i>                                    |
| Active Study       | HB 2447            | Abril, et al                         | <b>Indigent Health Care; Screening Program</b><br><i>See HB 2484</i>                 |
| Active Study       | HB 2427            | English, et al                       | <b>Welfare Health-Work Program</b><br><i>Passed House - failed in Senate (COW)</i>   |
| Active Study       | SB 1370            | Alston, et al                        | <b>Family Therapists</b><br><i>Held in Senate (H&amp;W)</i>                          |
| Active Study       | SB 1295            | Usdane                               | <b>Medical Liability Review Panels</b><br><i>Passed Senate - Held in House (COW)</i> |
| Active Study       | SB 1237            | Usdane                               | <b>State Health Plan</b><br><i>Held in Senate (Health)</i>                           |
| Active Study       | HB 2417            | Kunasek                              | <b>Doctor-Patient Privilege</b><br><i>Held in House (3rd Reading)</i>                |
| No Action          | HCR 2002           | Skelly, et al<br>Tenney, et al       | <b>Right to Life</b><br><i>Passed House - Held in Senate (JUD)</i>                   |
| No Action          | SB 1011            | Usdane                               | <b>Authorized Local Agency</b><br><i>Never Heard</i>                                 |
| No Action          | HB 2450            | Messinger                            | <b>Chiropractor Regulations</b><br><i>Passed House - Failed in Senate (COW)</i>      |
| No Action          | SB 1165            | Usdane                               | <b>Pharmacist Penalty</b><br><i>Failed in Senate (COW)</i>                           |
| Active Non Support | HB 2385            | TPO                                  | <b>Opticians, Dispensing</b><br><i>Failed House (COW)</i>                            |
| Active Non Support | SB 1144<br>HB 2220 | West, et al<br>Usdane, et al         | <b>Child Protection Act</b><br><i>Passed House - Failed in Senate (JUD)</i>          |
| Active Non Support | SB 1146            | Usdane                               | <b>Emergency; Triage System</b><br><i>Held in Senate (H&amp;W)</i>                   |
| Active Non Support | SB 1126            | Usdane, et al                        | <b>Local Health Boards</b><br><i>Failed Senate (3rd Reading)</i>                     |
| Active Non Support | HB 2161            | Goudinoff, et al                     | <b>Ownership of Health Records</b><br><i>Never Heard</i>                             |



| ArMA Action        | Bill Number | Sponsor        | Title and Status                                                                                 |
|--------------------|-------------|----------------|--------------------------------------------------------------------------------------------------|
| Active Non Support | SB 1143     | Urdane         | <b>Health Investigation &amp; Hearing Board</b><br><i>Passed Senate - Held in House (Health)</i> |
| Active Non Support | HB 2310     | Morales, et al | <b>Podiatry Hospital Privilege</b><br><i>Held in House (Health)</i>                              |
| Non Support        | HB 2298     | Thomas, et al  | <b>Nurse Internship</b><br><i>Held in House (Health)</i>                                         |
| Non Support        | SB 1249     | Pritzlaff      | <b>Dentist</b><br><i>Held in Senate (H&amp;W)</i>                                                |
| Non Support        | SB 1278     | Tenney, et al  | <b>Doctor Unprofessional Conduct</b><br><i>Passed Senate - Held in House (Health)</i>            |
| Non Support        | HB 2301     | Kunasek, et al | <b>Hospital Rate Review Repeal</b><br><i>Held in House (Health)</i>                              |



## Extracts from the Publications of the Arizona Medical Association

(continued)

John W. Kennedy, M.D.

In a previous issue *Arizona Medicine* Vol. 38, No. 4, 1981 there was a review of the earliest official publications of the Association. This was the *Territorial Transactions* followed by the *Arizona Medical Journal*, 1913-16, published quarterly. Both languished because of a lack of financial support by the members. The *Journal* cost was \$1.00 per year.

Now a new effort was to be made and as we shall see it prospered for a time. From 1917-1943 *Southwest Medicine* was, in part, the official publication of the Arizona Medical Association. We now present some excerpts from Volume 1, 1917 of *Southwest Medicine*.

### Journals Combined

The first page states that *Southwest Medicine* was formed by "Combining the New Mexico Medical Journal, The Arizona Medical Journal, the Bulletin of the El Paso County, Texas, Medical Society and the official organ of the Medical and Surgical Association of the Southwest."

The editor in chief was R. E. McBride of Las Cruces, New Mexico and the associate editor for Arizona was W. W.

Watkins, M.D. from Phoenix. He commented that "there was a cry in the land that the medical profession had no drug for the cure of tuberculosis," and stated that, "At one time the climatic treatment of tuberculosis was very popular and there was an old cry '(Colorado or death)'." He continued, "Now that the pendulum has gone back so far that they say climatic treatment has no special value - one, outdoor air is as good as another." He recommended that the medical treatment for tuberculosis was two fold: First, the treatment of symptoms due to the presence of tubercle in the lung. Second, treatment of symptoms due to intoxication.

He mentioned the symptomatic treatment for cough and symptoms of tracheal bronchial tuberculosis and for hemorrhage he simply stated, "That it has been my experience that emetine hydrochloride in two-thirds to one grain doses is most efficacious in those patients who have recurring small pulmonary hemorrhages."

*(As a young physician in 1934 I was in charge of a ward of tuberculous patients and as I recall this was still considered an effective medication in cases of repeated hemorrhage). Volume 1, No. 2, Southwest Medicine*

### A Home for Feeble-minded in Arizona (Editorial)

"In passing a bill for the establishment of a colony and home for feeble-minded in Arizona, the Legislature of the State, now in session, are taking an advanced stand amongst the States of the Union." The editorial concluded, "That the day has

passed when an intelligent community can, without shame, ignore the existence of feeble mindedness and continue to punish where they should teach, make outcasts of those whom they should house and train, and turn loose on society those they should segregate and treat with consideration. *Volume 1, page 71.*

### Medical Preparedness (Editorial)

"There is now a medical section in the Council on National Defense to correlate the activities of the medical department of the government, the National Defense Advisory Commission and the Committee on Physicians for Medical Preparedness. Among the items set out was that each county would have an active committee. One, to cooperate with the national and state committees. Two, to secure applicants for the Army Medical Corps. The regular Army needed about twelve hundred additional medical officers to fulfill the complement of troops already authorized by Congress. The Navy Medical Corps needed three hundred and fifty additional officers and medical officers on field duty, who should be under the age of forty-five."

*(Remember this was World War I.)*

### Legislation

The third Arizona Legislature (they mean after Arizona became a State) passed three laws of interest to the medical profession: The first one of these was designed to meet an emergency in Mohave County. This bill permitted the admission of patients, other than indigents, to county hospitals where they had to pay for their care. It was intended to apply to counties

who had no other hospital except a county hospital.

The second bill, House Bill 55, was passed into law abolishing the common drinking cup and common towel in all public places. (*barber shop, lavatories etc.*)

The third law was an amendment to the Medical Practice Act which authorized the Examining Board to make reciprocity contracts with other states and to extend an examination of different character to practitioners graduating prior to 1901.

Bills which failed to pass would have established a State Hospital for disabled miners, provided for the conservation of vision, established a home for feeble-minded, established a ward for the criminal insane at the State Prison, created a Board of Optometry and reorganized the State Board of Health. *Volume 1, No. 4, pages 51-54.*

#### Dissension

The editor commented there was some dissension among the component societies that were supporting *Southwest Medicine* and he hoped that this would be settled on a local level. He wrote, "We can fight our personal battles among ourselves in our society meetings and in our committee meetings but when it comes to the 'good of the order' the time for personalities and such like is passed." *Southwest Medicine* did persist and prosper. *Volume 1, No. 5, page 55.*

#### The Call to War

Most of the news under the section "Arizona News" had to do with members who were being called up for service in the Army or Navy. From Miami, Arizona, Capt. John E. Bacon had been called for active duty at San Antonio. Dr. Watts and Dr. Miller had been commissioned in the Officers Reserve. Dr. R. D. Kennedy of Globe had received his commission with the rank of Captain and others from Globe, Drs. Sturgeon, Kirmse and Gunter had also been commissioned. It was announced that Dr. A. M. Tuthill, formerly of Morenci, was now a Brigadier General in the regular Army and his commission was in the line not in the medical department. Drs. Sargent and Malone of Phoenix had been assigned to the School of Roentgenology in Los Angeles and were soon to be placed on active duty.

Among the other items reported was that Dr. John W. Flinn of Prescott had been appointed a member of the University of Arizona Board of Regents. The entire membership of the Board of Regents had been replaced with the exception of Dr. Whitmore of Tucson, and he had been elected Chancellor of the University. *Volume 1, No. 5, page 36.*

"The small and patriotic coterie of medical men of Prescott are feeling the burden of war times with more than the usual intensity, Major Yount has been with the National Guard since they were

first called to the border. Recently Dr. Southworth, a member of the Medical Reserve Corp received orders to report to Ft. Riley, Kansas." In Gila County the following Globe physicians made application for membership in the Medical Reserve Corp: Drs. R. D. Kennedy, W. W. Horst and S. S. Irwin, Drs. J. E. Bacon and C. Gunter were already members. *Volume 1, No. 6, page 45*

#### Anti-Tuberculosis Association

The county Tuberculosis Societies carried out the new plans of the Arizona Anti-Tuberculosis Association with an intensive organizational campaign. Maricopa County employed a visiting nurse. Her salary and expenses were pledged by business firms in Phoenix and an automobile was donated for her use.

In the editorial section of the October 1917 issue, Dr. Warner Watkins discussed the current thoughts of the profession on the effects of altitude and helio-therapy in the treatment of tuberculosis. He noted for many years sanatoriums in Switzerland, France and Germany had published figures on the effects of altitude on blood and metabolism, also the effects of ultra violet light. The main protagonist was Rollier from Switzerland. He had secured his best results at 5,000 feet in the Alps. Apparently the same thing was true in the Rocky Mountains. Dr. Watkins related that "Dr. Spoeher of the Carnegie Desert Laboratory in Tucson found that the percentage of violet rays was very materially greater on the desert around Tucson at an elevation of 2,000 feet than on the nearby Catalina Mountains, at elevations varying from seven to nine thousand feet, and that altitude does not increase the quantity of violet (therapeutic) rays which reach the earth, at least so far as the first test showed." (*So went the argument about fresh air, altitude and sunlight in Tuberculosis Care*).

1918 — The Nash six touring car was advertised for \$1,433 FOB, Arizona points.

#### Arizona News

Dr. T. J. Bouldin of St. Johns, passed his examination for the Medical Reserve Corp, Lt. William N. Sargent finished his training in the School of Roentgenology.

"The Sisters Hospital at Phoenix, which was nearly destroyed by fire recently, will be rebuilt of incombustible construction, with a \$30,000 fire-proof annex which will house the surgical departments, x-ray departments and the City Ward. The funds for this purpose have been secured. In addition to this there will be a tuberculosis department with a solarium." *Volume 1, page 34.*

#### Examining the Recruits - WWI began for U.S., April 1917

Remarks by A. G. Shortle on the examination of recruits by x-ray. He had received a request to do a paper on the

diagnosis of tuberculosis by x-ray in war time and stated that while he had x-ray equipment and could interpret chest films fairly well he did not pose as a roentgenologist. He therefore sought advice from Dr. P. B. Bullock who has taken a prominent part in examining 15,000 regular troops at El Paso and he quotes part of this doctor's reply which is, "It is very easy to reply to your query for the quite simple reason that x-ray has an extremely restrictive field of usefulness in the examination of recruits. Why? Because it does not tell the truth. The x-ray shows the foot marks of tuberculosis, it is absolutely essential that fibrosis be present if the x-ray is to show anything at all. Tubercles are penetrated by the x-rays as though they were not there." And he concluded by saying, "At first we used the x-ray plates quite frequently and now not at all. Practically what does this mean? Why simply that they aren't worth a damn that's all." This doctor also objected to the time it took to do the x-ray examination. Dr. Shortle then communicated with Lewis Gregory Cole, who was a major and on active duty with the U.S. Army, and was soon to become one of the leading radiologists of this country. He was, in the main, responsible for establishing the x-ray criteria for the diagnosis of duodenal ulcer. But, Dr. Cole had a very different opinion. He said that in New York they had examined 1,030 members of the 69th regiment of the New York National Guard but the findings of only 977 were recorded because 53 of the plates were unsatisfactory for various reasons. He also mentioned something about the technical factors. He stated the plates were made with a five inch spark gap and at 35 m.a. and varied from two to five seconds. The entire series of 1,030 plates was made with the same tube and transformer without a breakdown. He said six men were used in making them and the total time consumed in making the 1,030 plates was 7-1/2 hours or 26 seconds per patient. The interpretation of the plates was done by a group of roentgenologists who averaged 75 plates per hour and of these patients 35 (3.6%) showed definite gross pulmonary changes of a sufficient quantity and quality to disqualify them for military service. The conclusion of this dissertation was that every recruit, besides having a physical examination, should also be radiographed. It was the chest he was speaking of. (*So we see that at the time of World War I, x-ray still had its doubters. Warner Watkins fluoroscoped every recruit that came through the Phoenix examining station in World War I. I do not know what his rejection rate was.*) *Volume 1, No. 12, page 12.*

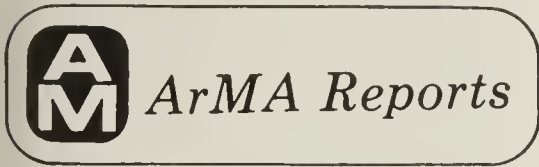
There was a notice stating that since September 1917, the situation of the Medical Reserve Corps, in regard to



numbers, had become less acute. About 14,000 were commissioned and 7,000 were in the process of being commissioned. Twenty-one thousand medical officers was sufficient for an army of two million men. *Volume I, No. 12, page 38.*

On the national level 1917 was noted for the introduction of ventriculography with air, introduced by Dr. Dandy, the Hopkins neurosurgeon. *(And a feud began with Harvey Cushing over priority).* Dr. Stockard and Dr. Papanicolaou demonstrated vaginal changes during the oestrous cycle of the guinea pig. *(But, it was nearly 20 years before this finding was applied to vaginal smears in the search for cervical and fundal cancer.)*

Politically - April 4, 1917 President Wilson asked Congress for a declaration of war on Germany, that, "The world must be made safe for democracy." The year before his re-election slogan was "He kept us out of war." *(Fashions do change.)*



The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

**HEALTH MANPOWER COMMITTEE**

Meeting of the Health Manpower Committee of the Arizona Medical Association, held on Thursday, January 29, 1981, at 810 West Bethany Home Road, Phoenix, Arizona, convened at 6:35 p.m., Laurence M. Linkner, M.D., Chairman, presiding.

**Letter Re Committee**

Dr. Linkner discussed a recent request from the President-Elect concerning activities of the Health Manpower Committee and his response to that letter. It was suggested by some members that the committee's responsibilities may not be clearly defined and that it may be re-active rather than acting with initiative. It was suggested that the committee might consider developing areas of possible health legislation to bring to the attention of the Legislative Committee.

**Health Manpower Shortage Areas**

Dr. Kossuth expressed concerns over the health manpower shortage areas designated by the federal government and the fact that local medical associations do not have enough input into these designations. Because of constraints of time, it was decided to postpone discussion of this item until the next meeting of the committee.

**Advisory Council on Nursing Manpower**

Dr. Linkner reported on the activities of this council which was appointed by the Director of Health Services and has been meeting over the past year and a half. He briefly discussed the report of the survey company which had been engaged by the council. *This item was for information only.*

**GMENAC Report**

The GMENAC report projecting health manpower needs over the ten-year period, 1980-1990, was discussed. It was felt that the committee was not informed enough to take a position and that the position of the AMA and the national specialty societies should be taken into consideration before this committee could make any determination on the report.

*It was moved and carried to table action on the GMENAC Report.*

**Rules and Regulations on Nurse Practitioners**

**Neonatal, Adult and OB/GYN Nurse Practitioners**

In reviewing the rules and regulations of the extended practitioners it was noted that there was some inconsistency in the language which relates to supervision or direction of the nurse by a physician particularly relating to regulating and adjusting medicines and treatment.

*It was moved and carried that the wording in the Rules and Regulations concerning each of the Nurse Practitioner roles should be consistent and should include "As prescribed or authorized by a licensed physician."*

**Other Allied Health Professionals**

A "white paper" developed by the American Academy of Physical Medicine and Rehabilitation concerning relationships between physiatrists and allied health professionals was received of information.

**Rural Health Planning Project**

Letter of November 28, 1980 from Andrew W. Nichols, M.D. concerning a report of the Advisory Committee on the Rural Health Planning Project was reviewed briefly.

*It was moved and carried that Dr. Nichols be advised that the committee would be happy to receive copies of the report for distribution to its members.*

**MEDICAL EDUCATION COMMITTEE**

Meeting of the Medical Education Committee of the Arizona Medical Association held on Thursday, March 12, 1981, at 810 West Bethany Home Road, Phoenix, convened at 6:55 p.m., Robert E. T. Stark, M.D., Chairman, presiding.

Dr. Hastings reported that the survey team reviewed the continuing medical education program of ArMA during the Annual Meeting in April, 1980 and recommended continued accreditation. The following action was taken:

*It was moved and carried to approve accreditation of the continuing Medical Education Program of the Arizona Medical Association for a period of four years.*

Dr. Hastings reported the status of the accreditation program. To date there are twenty-two accredited organizations and institutions in Arizona.

Letter of December 18, 1980 from Richard S. Wilbur, M.D., Secretary of the newly formed ACCME, Accreditation Council for Continuing Medical Education, (to replace the LCCME) proposed Essentials for Accreditation, and a letter of February 2, 1981 from James Sammons, M.D. concerning the organization of the ACCME, were discussed. It was the consensus of the committee to wait until the new ACCME has met and had an opportunity to review all accreditation procedures before commenting on any draft of Essentials.

It was decided to submit a letter to the AMA expressing the committee's belief in brevity in the Essentials and outlining the vital ingredients as presented by Dr. Hastings.

*It was moved and carried to submit a letter to the ACCME urging that all state associations be given the opportunity to respond to any draft of the Essentials for Accreditation which may be developed by the ACCME when it has begun operations.*

Dr. Stark reviewed a letter from the Finance Committee suggesting that the fee charged to hospitals for accreditation be raised substantially. Discussion followed in which members expressed a strong feeling that CME accreditation is a service to members of ArMA, since it makes CME available to them locally. Members were also concerned that if the fee is too high, the cost might be passed on to patients. It was recognized, however, that the fee of \$50.00 (established in 1972 or 1973) probably should be raised for reasons of inflation.

*It was moved and carried to recommend that the application fee for CME Accreditation surveys be raised to \$100.00, and that applicants continue to be charged for expenses incurred by survey team members.*

**Section on Certification - Ashton B. Taylor, M.D., Chairman**

Dr. Taylor reported that there remain eleven members who are delinquent in reporting their CME hours for 1979. He pointed out that they have all paid 1980



dues and most have paid 1981 dues. He expressed some concern over the loss of members but did feel that it was the committee's responsibility to refer the names to the Board of Directors for action.

*It was moved and carried to bring to the attention of the Board of Directors the names of those physicians not reporting Continuing Medical Education hours for the period ending December 31, 1979, with the recommendation that the Board take whatever action is deemed appropriate.*

#### **Section on Requirements - Albert G. Wagner, M.D., Chairman**

Dr. Wagner reported that co-sponsorship of CME programs has lessened the responsibility of the Section of Requirements. He suggested that no changes need be made in the guidelines for ArMA's CME certificate.

Dr. Newman reported on the CME programs of the Phoenix Radiology Society. The large attendance at the programs was pointed out.

Dr. Thomas Vorpahl reported, by letter, on the continuing medical education activities of Flagstaff Hospital and the Coconino County Medical Society.

Dr. Noel Yannessia also reported by letter Yuma County Medical Society's medical education activities.

#### **Mandatory Continuing Medical Education**

##### **Resolution to Repeal CME as a Requirement for Membership**

Dr. Stark asked for comments from members regarding the proposed resolution which would eliminate reporting continuing medical education hours as a requirement for membership. Discussion followed in which the committee expressed the opinion that no evidence has been found to prove whether or not patient care has been improved because of mandatory CME. Members were divided as to whether the lack of evidence should lead to repealing the requirement. The following action was taken with some dissenting votes.

*It was moved and carried to express to the Board the opinion that removal of the CME requirement for membership does not appear to be advisable at this time and to recommend that mandatory CME be retained.*

#### **CME Conference**

The Annual AMA CME Conference will be held in Chicago October 1-2, 1981. In the past, one member of the committee and one member of staff attended the conference.

#### **Academy of Medical Science**

Jerry Burbach reported on the resolution passed by the Academy of Medical Science regarding the development of bio-medical information

network and a library system

#### **Medical Students**

Sharon Sandell, a medical student from the University of Arizona, reported on concerns of students on several matters. These were responded to by staff and committee members.

#### **EXECUTIVE COMMITTEE**

The meeting of the Executive Committee of the Arizona Medical Association held at 810 West Bethany Home Road, Phoenix, Arizona, on Friday, March 20, 1981, a quorum being present, convened at 6:47 p.m., John T. Clymer, M.D., President and Chairman, presiding.

#### **Regionalized Telephone Books**

Mr. Barnett reported to the committee on his discussions with the Arizona Corporation Commission relative to their consideration of the issue of regionalized telephone books which are being contemplated. Mr. Barnett advised that the Commission does not feel the matter is within its jurisdiction; that it is considered advertising only; and that it intends to take no action. Likewise, the committee was informed that the legislature does not intend to consider this matter at the present time.

#### **ArMA Vs. Corbin**

Letter of March 11, 1981 from Snell and Wilmer containing status report on ArMA vs. Corbin litigation. *Received*

#### **Endowment Fund**

The committee received and discussed the letter from Dr. Dudley of February 16, 1981 regarding Board action taken 1/20/81 on the possibility of establishing an endowment fund. It was determined that, since some confusion apparently exists as to what exactly the Board was requesting from the Benevolent and Loan Fund Committee, Dr. Kurtz would contact Dr. Dudley by letter, setting forth his thoughts on an endowment fund which could then be considered by Dr. Dudley's committee in developing initial planning and criteria for such a fund for the Board's consideration.

#### **ARDRA — Phoenix**

##### **Request for Co-Sponsorship**

The February 26th. request from ARDRA-Phoenix (Alzheimer's Disease and Related Disorders Assn., Inc. of Greater Phoenix) for co-sponsorship of a seminar to be conducted April 2-4, 1981, entitled "The Scottsdale Alzheimer's Brain Disease Seminar," was reviewed and discussed. The members were informed that the Maricopa County Medical Society had, likewise, been requested to participate in such sponsorship and

*It was moved and carried that, should the Maricopa County Medical Society have agreed to participate as a co-*

*sponsor for the April 2-4, 1981 Seminar, "The Scottsdale Alzheimer's Brain Disease seminar," ArMA would, likewise, agree to act as a co-sponsor; alternatively, should the county have determined not to co-sponsor, ArMA would again follow suit.*

#### **BoMEX Appointments**

The committee again discussed the existing vacancies on the Board of Medical Examiners, as well as that which would be created in June by reason of the expiration of the term of William B. Helme, M.D., and, following consideration of various members of the medical profession.

*It was moved and carried to submit to Governor Bruce E. Babbitt for his consideration for appointment to the Board of Medical Examiners the names of John T. Clymer, M.D., Richard L. Dexter, M.D., Michael R. Geyser, M.D., Paul B. Jarrett, M.D. and Richard D. Zonis, M.D.*

#### **Building Fund Delinquencies**

A status report on physicians who were still delinquent in the payment of building fund assessments was given to the committee by Misty Coumbe. The committee discussed the matter at great length and it was felt that personal contact might possibly help in allowing those involved to bring the payments current. In that regard, Dr. Clymer agreed to make telephone contact with the Pima County physicians involved; Dr. Baker, the Maricopa County physicians.

#### **Request for Legal Fees**

The February 23, 1981 request from the Medical Society of the County of St. Lawrence, Incorporated for assistance with legal fees to be incurred by that society in its attempt to alleviate what it perceives to be discrimination against rural physicians by the federal government was reviewed by the committee. Following discussion, the determination was made to forward the request to the American Medical Association for its review and consideration.

#### **Malpractice Insurance Crisis Committee**

Status report on the fund established for use by the Ad Hoc Malpractice Insurance Crisis Committee. *Received.*

#### **Arizona Rural Health Conference**

The committee reviewed a request from Andrew W. Nichols, M.D. for funds and co-sponsorship of the 8th Annual Arizona Conference on Rural Health tentatively scheduled for August 21-22, 1981 in Prescott. It was determined that insufficient information was available upon which any determination could be made at this time; therefore, the matter was tabled until the next meeting of this committee, at which time Dr. Oakley would present further descriptive



materials and a report following contact with Dr. Nichols.

### **Board of Directors' Agenda**

The agenda for the March 21st Board of Directors' meeting was reviewed, item by item, with changes and additions being made.

### **American Association of Retired Persons News Bulletin**

Dr. Kurtz presented for the committee's review a copy of the March issue of the American Association of Retired Persons (AARP) News Bulletin, which carried an erroneous Executive Director's Report on Medicare. Dr. Kurtz requested permission of the Executive Committee to respond to the article, as President-Elect of ArMA, with the hope that the letter would be printed and read by the many subscribers to that publication.

*It was moved and carried to approve the writing of a response by Clyde W. Kurtz, M.D., as President-Elect of the Arizona Medical Association to the Executive Director's report Re: Medicare which was carried in the March issue of the AARP News Bulletin.*

### **BOARD OF DIRECTORS**

A meeting of the Board of Directors of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Saturday, March 21, 1981, a quorum being present, convened at 10:14 a.m., John T. Clymer, M.D., President and Chairman presiding.

#### **ArMA Auxiliary**

#### **Auxiliary Activities Report**

Mrs. Newman reported to the Board on various activities of the ArMA Auxiliary, including among other things, the preparation of a "Physician Survivor Information" brochure to be distributed to participants of a workshop to be conducted on the subject during the 1981 Annual Convention of the Association. Mrs. Newman also advised that the Auxiliary had recently completed a State Auxiliary Handbook, a copy of which would be left at the Association offices. The Board was informed that, via state and county auxiliary projects, \$14,000.00 had already been raised for AMA-ERF. Mention was made of the Auxiliary's involvement in an upcoming seminar entitled "Physician Stress and Distress" and of the fact that Mrs. Newman had been named as the Auxiliary's representative on the board of the Arizona constituent group of the American School Health Organization.

#### **"Early Start to Good Health"**

Form letter to parents from the ArMA Auxiliary concerning the "Early Start to Good Health" project. *Received.*

### **ArMA Financial Support**

Thank you letter of January 21, 1981 from ArMA Auxiliary regarding \$1,000.00 received from ArMA. *Received.*

### **"Rape, Assault, Incest and Family Violence" Seminar**

Thank you letter of February 9, 1981 from Maricopa County Auxiliary regarding supply contribution received from ArMA for recent seminar on "Rape, Assault, Incest and Family Violence". *Received*

### **Board of Directors Annual Report of BOMEX**

Douglas N. Cerf, Associate Executive Director of the Board of Medical Examiners, reviewed the Annual Report of BOMEX which was received by the Board of Directors, as well as discussing briefly such matters of interest as the Sunset review of BOMEX which is being conducted by the Attorney General's Office, which should be finalized in September, and present and upcoming vacancies on the Board of Medical Examiners.

### **Membership Status Report**

Misty Coumbe advised the Board as to the current status of ArMA, as well as AMA, membership for 1981, stating that approximately 2,077 physicians have paid 1981 ArMA dues and approximately 84% of that number have also paid AMA dues. Total and exact figures should be available for report to the Board during its meeting in May.

### **Executive Committee Ratification of Minutes**

*It was moved and carried to accept and ratify the minutes of the Executive Committee meeting held on February 27, 1981.*

### **Membership Classification Changes Approved**

#### **Cochise County Medical Society**

1. John C. Conroy, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

#### **Maricopa County Medical Society**

1. Clyde J. Barker, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

2. E. Curtis Brown, M.D. - Active to Associate - Account Further Training - Dues Exempt - Effective 1/1/81.

3. David L. Call, M.D. - Request for Dues Refund - Account Illness.

4. Arthur S. Goldberg, M.D. - Active to Associate - Account Residency - Dues Exempt - Effective 1/1/81

5. Julius Schwimmer, M.D. - Active to Associate - Account Further Training - Dues Exempt - Effective 1/1/81.

6. Bertram L. Snyder, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/81

7. Eleanor A. Waskow, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

### **Pima County Medical Society**

1. Carl E. Billings, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

2. Bernard B. Dwyer, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

3. George A. Shetter, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

### **Fifty Year Club Memberships**

1. Richard E.H. Duisberg, M.D.

2. Bernard Frazin, M.D.

3. Clarence C. Piepergerdes, M.D.

4. Lowell C. Wormley, M.D.

### **Awards Committee, Ad Hoc**

The Board was informed of the Ad Hoc Awards Committee's selection of John K. Kerr, M.D. as recipient of the 1981 A. H. Robins Community Service Award and, Dr. Kerr being in attendance, was acknowledged and congratulated by the membership.

### **County/State Unified Membership, Ad Hoc Committee on**

The Board received and reviewed the recommendations of the Ad Hoc Committee on County/State Unified Membership, together with the resolution prepared by that committee for submission to the House of Delegates during its May meeting on that subject. Additionally, Dr. Neil O. Ward, Chairman of the Ad Hoc Committee on County/State Unified Membership presented a verbal report of his committee's deliberations and activities prior to making its recommendations.

*It was moved and carried to accept Dr. Ward's oral report regarding the deliberations and activities of the Ad Hoc Committee on County/State Unified Membership and its ultimate recommendations that the proposed bylaws changes on Unified Membership between the County Medical Societies and the Arizona Medical Association not be adopted.*

*It was further moved and carried that such report be prepared in written form for inclusion in the Delegates Manual as well as immediate circulation to all County Societies for review and consideration prior to the 1981 Annual Meeting.*

### **Finance Committee**

#### **1980 Audit**

The Certified Public Accountant's 1980 Audit Report prepared by Henry & Horne, dated February 25, 1981 and the Management Letter from Henry & Horne dated March 11, 1981. *Received.*

### **Financial Statement**

Financial Statement for the period ending 2/28/81. *Received.*



## Legislative Committee

### Position Papers

The Board considered jointly the recommendations of the Legislative Committee and the Health Manpower Committee relating to Position Papers adopted by the Board in October of 1979 relating to the subjects of Naturopathy, Chiropractic, Nurse Practitioner and Podiatry and heard the concerns of both committees by comment from their respective chairmen regarding the need for re-evaluation and update of those papers. Following a lengthy discussion,

*It was moved and carried that the position papers Re: Naturopathy, Chiropractic, Nurse Practitioner and Podiatry adopted by the Board of Directors in meeting on October 6, 1979 be referred to the Health Manpower Committee for its review and update.*

*It was further moved and carried that, since the area of fringe practitioners was one of nationwide concern, assistance of the American Medical Association should be sought, in resolution form, for the evaluation of competence of training programs for such practitioners, and that the matter be referred to the Executive Committee and Legal Counsel for drafting of a proposed resolution and instruction to the Association's AMA Delegation.*

### Indigent Health Care

The Board reviewed the Legislative Committee's recommendation of March 4th concerning the appointment of an ArMA committee to aid the legislature in developing a program of health care for the indigent and, following discussion,

*It was moved and carried accepting the Legislative Committee's recommendation that the Association appoint a committee to aid the Legislature in developing a program of Health Care for the Indigent and that the matter be referred to the Executive Committee for selection and appointment of committee members.*

Along these same lines, the Board was informed of a paper on indigent health care and principles developed by the Arizona Hospital Association, as well as reminded that tapes had been made of a seminar which had, in the past, been conducted by Joseph W. Hanss, Jr., M.D. on the subject of indigent health care. It was the consensus of the membership that the ArHA document and the seminar tapes would provide information helpful to the committee in assisting in the development of a program of health care for the indigent and that both should be furnished to that committee following its appointment.

### Legislative Update

Gary Barnett reported to the Board on those bills currently reviewed by the

legislature which the Association is actively supporting, as well as on those pieces of legislation being actively opposed by ArMA, and various of those were discussed at length by members of the Board.

### Long Range Planning Committee, Ad Hoc Confirmation of Appointment

*It was moved and carried to confirm the appointment of Frederick C. Scott, M.D. as a member of the Ad Hoc Long Range Planning Committee for the balance of the 1980-81 term.*

### Long Range Planning Committee Workshop - 2/28/81

Dr. Oakley, Chairman of the Ad Hoc Long Range Planning Committee, reported on the successful workshop held on February 28, 1981, and presented to and reviewed for the Board the goals and objectives which had been developed by the participants. Following discussion,

*It was moved and carried to refer the goals and objectives for the Long Range Planning of ArMA developed in the workshop held on February 28, 1981, back to the Ad Hoc Long Range Planning Committee for that committee's refinement of such goals and objectives and development of guideline for procedures now to be followed by the Association in accomplishing same.*

### Medical Economics Committee

The Board received and reviewed the recommendation of the Medical Economics Committee that the Association adopt an official position relating to mental health insurance coverage as requested by ArMA's Physician Rehabilitation Committee.

*It was moved and carried to adopt the recommendation of the Medical Economic Committee that the Arizona Medical Association support the principle that any health insurance policies offered through the Association or the constituent county medical societies provide coverage for the treatment of emotional disorders and substance abuse for physicians and their families and further, that a model insurance policy would include coverage of 30 in-patient days per year and 20 out-patient visits per year at a co-insurance of no greater than 20% for the treatment of these disorders.*

*Additionally, it was determined that this new position on mental health insurance coverage be immediately communicated to the membership.*

### Medical Education Committee

Dr. Robert E. T. Stark, Chairman of the Medical Education Committee, appeared and addressed the Board on the following matters:

## ArMA

### Accreditation

Letter of the Medical Education Committee dated 3/13/81 approving ArMA's CME Accreditation Program for a period of four years. *Received*

### Mandatory CME

*It was moved and carried to accept, for information, the letter from the Medical Education Committee dated March 31, 1981, containing its opinion that the mandatory CME requirement be retained by the Association.*

### 1979 CME Delinquents

The Board reviewed the March 13, letter of the Medical Education Committee regarding those physicians who have not reported their CME activities for 1979 and, in light of the resolutions on the subject of Continuing Medical Education which will be presented to the House of Delegates during its 1981 Annual Meeting.

*It was moved and carried that no action would be taken regarding those physicians presently delinquent in the reporting of their 1979 CME activities until the matter of Continuing Medical Education Requirements has been resolved by action of the House of Delegates in May 1981.*

### Nominating Committee

Nominating Committee's report of 2/21/81 meeting and subsequent withdrawals from the ballott. *Received.*

### Correspondence

Letter of 3/6/81 from the Arizona Nurses' Association re: Outstanding Nurse Award. *Received.*

### Other Business

### Exhibit Space - 1981 Meeting

*It was moved and carried approving the Scientific Assembly Committee's recommendation of January 17, 1981 that the presentors of Scientific Exhibit Applications entitled "Home Health Services - Under Your Direction" and "The Emergency/Primary Care Nurse Practitioner Program" be offered booths in the commercial exhibit area at a discounted rate of \$250.00.*

### Communications Workshops

*It was moved and carried approving the Scientific Assembly Committee's recommendation of January 17, 1981 that the communications workshops being sponsored by the Auxiliary during the 1981 Annual Convention of the Arizona Medical Association be open to registration and attendance, at no charge, to the nurses throughout the state.*

### Next Meetings

Dr. Clymer called the Board's attention to the fact that the next meetings of both the Executive Committee and the Board of Directors would be held in conjunction with the 1981 Annual



Convention at The Pointe Resort, more specifically as follows: Executive Committee - 6:00 a.m., Wednesday, May 20, 1981; Board of Directors - 8:00 a.m., Wednesday, May 20, 1981.

## **PUBLIC RELATIONS COMMITTEE**

Meeting of the Public Relations Committee of the Arizona Medical Association, Inc. held on Saturday, April 4, 1981, at 810 West Bethany Home Road, Phoenix, Arizona, convened at 1:10 p.m., John T. Clymer, M.D., Chairman, presiding.

### **Minutes**

Dr. Clymer asked the participants to define public relations as it relates to the Arizona Medical Association and pinpoint problem issues and areas of concern. The general consensus was that an ArMA public relations effort should be directed at telling medicine's story to the media, to patients, and to the community at large as well as telling the Association's story to members and prospective members. Publications by the AMA and representative state medical associations were demonstrated as a prelude to a brainstorming session to develop possible future public relations efforts for ArMA. Suggestions include the following, which are listed in order presented:

1. Membership training in communication techniques for dealing with media, with patients, with families, and as speakers on health topics.
2. Better liaison with lay groups (writers/editors, business/industry). Work with business to decrease cost of medical care, inform physicians how to best serve industry.
3. Develop respondent's panel of M.D.'s for media. Panel to be screened according to specialty and trained when necessary.
4. Utilization of pre-medical and medical students to provide patient education in private setting - schools and physicians' offices. Train students in communications techniques and medical facts.
5. Sponsor patient education seminars.
6. Develop Community Town Hall type meetings on health in cooperation with county societies and hospitals. Provide for a regular exchange of information.
7. Train nurses and paramedical personnel in communications and patient education techniques. Sponsor medical assistant workshops to improve medical office/patient relationship.
8. Prepare brochures/newsletters for patient education/information for distribution in physicians' offices.

9. Make better use of *Arizona Medicine* for practice management information, patient education, medical and socioeconomic news. Reproduce samples of brochures which are available for use by doctors.

10. Staff a Health Booth at State and County Fairs. Provide information - not a health assessment.

11. Form a retired physician's group to involve retired physicians in patient education and ArMA committee work.

12. Develop a health memo or newsletter featuring health information which business and industry could use in their in-house publications.

13. Develop radio and television programs on medical topics as well as health columns for use in local papers.

14. Establish an Endowment Fund which could be used for scholarships, health education projects, etc.

15. Provide ArMA representation at Medical School orientation programs and pre-med student meetings. Encourage M.D.s to act as advisors and inform students of the benefits of organized medicine. Develop a "Spend A Day With A Doc" program for pre-meds.

It was decided to send this list of suggestions to all members of the Public Relations Committee, asking them to rank the suggestions in order of importance and return their list to ArMA. No date was set for the next Public Relations Committee meeting, but it was suggested that meetings be held more frequently in the future. Members will be notified well in advance of the next meeting.

## **FINANCE COMMITTEE**

The meeting of the Finance Committee of the Arizona Medical Association held in the Administration Conference Room at the Thomas Davis Clinic, Fifth & Alvernon Streets, Tucson, Arizona, on Saturday, April 11, 1981, convened at 9:15 a.m., Neopito L. Robles, M.D., Chairman, presiding.

### **1981 Committee Budgets**

The committee received the Board of Directors' letter dated October 7, 1980 advising the committee of the Board's approval of the 1981 committee budgets as originally recommended by the Finance Committee.

### **Interest Income and Medical School Scholarships**

Extensive discussion over the matter of using earned interest exclusively for medical student scholarships as dictated by Resolution 14-64 and the restatement of the policy by the Board of Directors on October 4, 1980. After discussion, the following action was taken:

*It was moved and carried to introduce a resolution in the upcoming House of Delegates' meeting which would limit medical student scholarships to \$6,000.00 per year and would permit earned interest in excess of \$6,000.00 per year to revert to the General Fund to be used as determined by the Finance Committee.*

### **CME Accreditation Fees**

The matter of increasing the subject fees was reviewed at length, taking into consideration the Medical Education Committee's letter of March 13, 1981 and its recommendation to increase the fee to \$100.00.

*It was moved and carried to recommend to the Board of Directors that the CME Accreditation Fee be set at \$250.00.*

### **Intern and Resident Dues**

Concern was expressed over the low number of interns and residents as well as the low dues paid by them in light of the extensive benefits provided via attendance at AMA meetings, etc. *No Action Taken.*

### **1981 Salary Budget**

During the discussion of Account 518 - Salaries for the 1982 budget, the question of this budget item for the year 1981 was discussed and the following action was taken:

*It was moved and carried to direct the Executive Director to limit salaries (Account 518) during 1981 to \$275,000.00, a reduction of \$33,000.00 from the originally budgeted amount of \$308,000.00.*

### **Automobiles**

*It was moved and carried to review the matter of leasing vs. purchasing the Association's three automobiles and to use the cheapest method in the future.*

### **Printing Department**

The concept of enlarging the printing department was discussed at length.

*It was moved and carried to ask staff to review the Printing Department and to report back their recommendations regarding expansion.*

### **Evaluation**

Dr. Kurtz reviewed the idea of obtaining a program and/or financial evaluation of the Association's operation.

*It was moved and carried to recommend to the Board of Directors that they approve the engagement of an organization to conduct a financial evaluation of the Association's activities.*

### **1982 Budget**

The committee reviewed each income and expense account for the 1982 budget at great length and took the following action:

*It was moved and carried to submit to the House of Delegates the attached budget for the year 1982.*



## Future Medical Meetings

The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program, (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

### JUNE

#### Structural Family Therapy Series Blended Family

June 19-20, 1981. Scottsdale Camelback Hospital, Scottsdale, Arizona. Sponsor: Philadelphia Child Guidance Clinic and Arizona Family Learning & Communication Center. Contact: Arizona Family Learning & Communication Center, Metro Medical Plaza, B403, 3201 W. Peoria Ave., Phoenix, AZ 85029. Approved for hour per hour of category 1 credit.

#### 4th Annual Summer Pediatric Conference

June 19-21, 1981. Poco Diablo Resort, Sedona, Arizona. Sponsor: U of A College of Medicine and Arizona Pediatric Society. Contact: Office of CME & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 13 hours of category 1 credit.

#### Orthopedic Lecture

June 23, 1981. The Plaza Club, Phoenix. Sponsor: St. Luke's Hospital and Medical Center. Contact: Christine Campbell, Seminar Coordinator, St. Luke's Hospital Medical Center, 525 N. 18th Street, Phoenix, AZ 85006. Approved for one hour of category 1 credit.

#### Intra- Extracapsular Cataract Extraction, with IOL Implanaton

June 24-27, 1981. Sponsor: The Eye Foundation. Contact: Ronald W. Barnet, M.D., Medical Director, 421 N. 18th Street, Ste 105, Phoenix, AZ 85006.

#### Advanced Cardiac Life Support (Recertification/Provider)

June 26, 27, 28 1981. Arizona Medical Association. Sponsors: ACET, Az Affiliate - Am. Heart Assn., & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

### JULY

#### Advanced Cardiac Life Support (Provider)

July 7, 8, 9, 1981. Arizona Medical Association, Phoenix. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

#### Therapy of Thyroid Disorders for the Primary Physician

July 10-11, 1981. Little America, Flagstaff, Az. Sponsor: U of A College of Medicine. Contact: Christy Snow, Continuing Medical Education, Arizona Health Sciences Center, Tucson, AZ 85724. Approved for 13 hours of category 1 credit.

#### Advanced Cardiac Life Support (Recertification)

July 21, & 22, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

#### Sexual Dysfunction in the Pulmonary Patient

July 22, 1981. Boswell Memorial Hospital. Sponsor and Contact: Byran R. Updegraff, M.D., Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, AZ. Approved for hour per hour category 1 credit.

#### Intra- Extracapsular Cataract Extraction, with IOL Implantation.

July 22-25, 1981. Phoenix, Az. Sponsor: The Eye Foundation  
Contact: Ronald W. Barnet, M.D., Medical Director, 421 N. 18th St., Ste 105, Phoenix, AZ 85006

#### Coconino County Medical Society 17th Annual Summer Medical Seminar

July 24 & 25. Little America, Flagstaff, Arizona. Sponsor: Arizona Medical Association. Contact: Lana L. Holstein, M.D., P.O. Box 392, Flagstaff, Arizona 86002. Approved for 14 hours of category 1 credit.

#### Female Sexuality for Women Only

July 25, The Pointe of View, Phoenix, Az. Sponsor: Family Planning Institute. Contact: Patti Clifton, Family Planning Institute, 9100 N. 2nd St., Phoenix, AZ 85020. Open to Registered Nurses and Medical Assistants.

### AUGUST

#### Current Treatment of Renal Disease in the Elderly Patient

Sponsor & Contact: Walter O. Boswell Memorial Hospital - Office of CME, 10401 Thunderbird Boulevard, Sun City, AZ. Approved for hour per hour category 1 credit.

#### Advanced Cardiac Life Support (Provider)

August 11, 12, & 13, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

#### Advanced Cardiac Life Support (Recertification)

August 27 & 28, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

### MONTHLY OR WEEKLY

#### Shrine Medics Meeting

Second Tuesday of each month, Doctor Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

#### Office Psychiatry for the Primary Provider

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Planning Council. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

#### Counter Transference Group

Weekly, Thurs. 8—10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

#### Monthly Meeting of Tucson Radiologists

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

#### Pediatric Grand Rounds

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliate Pediatric Program). Contact: J. Kip Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.



**Review of Forensic Pathology**  
**Current Case, Special Topics**  
Thursday, weekly, 11 a.m., 120 S. 6th Ave.,  
Phoenix, AZ. Sponsor: Arizona Society of  
Pathologists. Contact: H.H. Karnitschnig,  
M.D., 120 S. 6th Ave., Phoenix, AZ. Approved  
for 1 hour per session category 1 credit.

## ARIZONA HEART INSTITUTE

800 N. 22nd St., Phoenix, P.O. Box 10,000,  
Phoenix, AZ 85064 Contact: Ravi Koopot,  
M.D.  
**Clinical Conference Cardiovascular  
Medicine**  
Third Tues., 5:15 p.m., second floor  
classroom

## ARIZONA STATE HOSPITAL

500 E. Van Buren, Phoenix, AZ. 85008.  
Contact: Arnold L. Kendall, M.D.  
**S.H. Psychiatric Grand Rounds**  
Wed., 1:00-2:00 P.M., J-6 Conf. Rm.,  
Contact: Dr. Conger & Staff  
**Clinical-Pathological Conference**  
Wed., 1:30-2:30 P.M. General Services  
Bldg., Conf. Rm.  
**Medical Grand Rounds**  
Thurs., 1:00-2:00 P.M., Medical Bldg. Conf.  
Rm.

## BARROW NEUROLOGICAL INSTITUTE

**Medical Education**  
Barrow Neurological Institute of St. Joseph's  
Hospital and Medical Center, 350 W. Thomas  
St., Phoenix, AZ 85013. Sponsor: St Joseph's  
Hospital & Medical Center. Contact: John R.  
Green, M.D. Approved for 1 hour category 1  
credit.

**Neurology Teaching Conference**  
Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf.  
Room.  
**Neurosurgical Morbidity Conference**  
Wednesdays, 8:15-9:15 a.m., on first and third  
and 5th, Eighth Floor Conference Room.  
**Neuro-ophthalmology Conference**  
Tuesdays, 7:30 a.m. in 8th floor neurology  
conference room.  
**Spinal Injury Conference**  
Wednesdays, 8:15-9:15 a.m., on second and  
third weeks, in Neuropathology Conf.  
Rm.—a multidisciplinary review of admission  
by neurosurgeons, orthopedists, and  
rehabilitation specialists  
**Neuro-ophthalmology Conference.**  
Weekly, 7:30 a.m., 8th floor conference Rm.  
**Neuropathology of Gross Specimens  
Conference**  
Thursday, 7:30-8:30 a.m. in the Morgue.  
**Neurology-Neurosurgical**  
Fridays, 8-9 a.m., First Floor Conference Rm.  
**Neuropathology or Neuroradiology  
Conferences**  
Friday, 9 a.m., Neuropathology in  
Neuropathology Conference Rm.,  
Neuroradiology in First Floor Conference  
Rm.  
**Neurorehabilitation Conference**  
Tuesdays, noon, 8th Floor Conference Rm.  
**Neurosurgical Journal Club**  
Saturdays, 9-11 a.m. in Eighth Floor  
conference Rm.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Thunderbird Boulevard, Sun City, AZ  
85372. Contact: Martha R. Newby, ED.D.,  
Director of Education.

**Medical Department Continuing Medical  
Education**  
4th Wednesday, 12 Noon, C119. May, July,  
Sept. & Nov.  
**Tumor Board**  
Last Thursday of the month, 12 Noon, Educ.  
Center Classroom I & II, May, July, Sept. &  
Nov.  
**Surgical Department CME**  
4th Friday, 7 A.M., Educ. Center Classrooms I  
& II. Contact: Brian Updegraff, M.D.

## CAMELBACK HOSPITAL

5055 N. 34th St., Phoenix, AZ 85018. Sponsor:  
Camelback Hospital. Contact: T. F. Reid, Jr.,  
M.D.  
**Clinical Conference**  
3rd Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

1400 South Dobson Road, Mesa, Arizona,  
Contact: L.A. Rosati, M.D. Approved for  
category 1 credit.  
**CME Programs**  
Weekly Tuesday, 7 p.m., Cafeteria-West End.  
**Clinical Conference - Dept. of Medicine**  
Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch,  
Grande Rm.  
**OB/GYN Medical Staff Conference**  
Weekly, Monday, 12:30-1:30 p.m. Grande Rm.  
**Pediatric Case Conference**  
2nd. Friday, 12:30 p.m., Grande 2

## DOCTORS HOSPITAL

1747 East Thomas Road, Phoenix, Arizona  
86016 Contact: Medical Staff Secretary for  
additional information.

**Physicians Continuing Education Program**  
1st Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

1400 N. Wilmont Road, Tucson, AZ 85712.  
Contact: Eric G. Ramsay, M.D. Approved for  
category 1 credit.  
**Family Practice Department Meeting**  
1st Monday, 12 Noon, Contact: R. Grossman,  
M.D.

## FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA

1215 N. Beaver Street, P.O. Box 1268,  
Flagstaff AZ 86002. Contact: B. C.  
Hirschberg, M.D., CME Program Clinical  
Conference. Approved for category 1 credit.  
**Interesting Case Conference**  
1st Tuesday, 12:30 P.M., Tollefson Rm.  
**Clinical Conferences**  
Weekly Tuesdays, 12:30 P.M., Tollefson Rm.  
**Tumor Board Case Conference**  
3rd Tuesday, 12:30 P.M., Hospital Conf. Rm.  
**Mortality & Morbidity Conference**  
1st Thursday, 12:30 P.M., Hospital Conf. Rm.

## GOOD SAMARITAN HOSPITAL

1033 East McDowell Rd., Phoenix, AZ  
Contact: W. J. Howard, M.D. Approved for  
category 1 credit.

**Anatomical Path. & Cytology**  
Weekly, Mondays 4:00-5:00 p.m., S-4 Conf  
Rm.  
**Gynecological Section Conference**  
2nd Monday, 12:30-1:30 p.m., West Rm  
**Monday Noon Conference**  
Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.  
**Mortality/Morbidity, Surgery Comm.**  
2nd Monday, 11:30-2:00 p.m., West Rm.  
**Obstetrical Section Conference**  
1st Monday, 12:30-1:30 p.m., West Rm.  
**Pulmonary Disease Grand Rounds**  
Weekly, 12:00-1:00 p.m., D-5 North  
**Family Practice Conference**  
Weekly Tuesday, 12:00-1:00 p.m., Fam.  
Practice Conf. Rm.  
**Pediatric Grand Rounds**  
3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul  
Bergeson, M.D.  
**PM & R Noon Inservice**  
2nd & 4th Tuesday, 12 Noon, R-2 Conference  
Rm.  
**Surgical Grand Rounds**  
Weekly, Tuesday 7:00-8:30 a.m. East Rm.  
**Clinical Cancer Fourm**  
3rd Wednesday, 12:00-1:00 p.m., West Rm,  
Contact: John A. Bruner, M.D.  
**Combined Cardiovascular & Family Practice  
Conf.**  
1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5  
North.  
**Learning Disabilities**  
Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.  
**OBGYN Dept. Review & Statistics**  
Weekly, 12:30-3:00 p.m., OBGYN Conf. Rm  
**Gynecological Pathology**  
Weekly Thursday, 1:00-2:00 p.m., S-4 Conf.  
Rm.  
**GI Radiology Conference**  
1st Thursday, 12:00-1:00 p.m., F151,  
Radiology Conf. Rm.  
**Phoenix Ultrasound Soc. Meeting.**  
Medical Education Building, Contact: Dr.  
Ben Ora  
**Neurology Grand Rounds**  
Weekly Thursday, 9:00-10:00 a.m., D-5 North.  
**Tumor Treatment Planning Conf.**  
2nd & 4th Thursdays, 12:00-1:00 p.m., F151  
Radiology  
**Joint Tumor Gyn Conference**  
2nd Friday, 12:30-1:30 p.m., West Rm.  
**Medical Grand Rounds**  
Weekly Friday, 8:00-9:00 a.m., West Rm.  
**Neuropathy Conference**  
Last Friday, 1:15-2:15 p.m., S-4 Morgue.  
**Psychiatry Grand Rounds**  
Weekly Friday, 11:30-1:00 p.m., East Rm.

## KINO COMMUNITY HOSPITAL, (THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact:  
Eric C. Ramsay, M.D., Approved for Category  
1 credit.  
**Attending's Hour**  
5th Monday, 12:30 p.m., Contact: J.  
Goldberger, M.D.  
**Infectious Disease Conference**  
3rd Monday, 12:30 p.m., Contact: Barry  
Friedman

**Ophthalmology Conference**

1st Monday, 12:30 p.m., Contact: Bruce Gillers, M.D.

**Psychiatric Conference**

2nd & 4th Mondays, Contact: J. Santiago, M.D.

**Surgical Conference**

Weekly Mondays, Contact: R. Fischer, M.D.

**Cardiology Conference**

4th Tuesday, 12:30 p.m., Contact: B. Phibbs, M.D.

**Clinical Pharmacology Conference**

5th Tuesday, 12:30 p.m., Contact: M. Katz, Clinical Pharm.

**Neurology Conference**

1st & 3rd Tuesday, 12:30 p.m., Contact: J. Laguna, M.D.

**Radiology Conference**

2nd Tuesday, 12:30 p.m., Contact: M. Baker, M.D.

**Medical Surgical Grand Rounds**

2nd Wed., 12:30 p.m., Contact: Chief Medical Resident

**Medical Conference**

1st Wed, 12:30 p.m., Contact: Chief Medical Resident

**Cardiology Conference**

1st Thursday, 12:30 p.m., Contact: B. Phibbs, M.D.

**Endocrine Conference**

2nd Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

**GI Conference**

4th Thursday, 12:30 p.m., Contact: C. Kanun, M.D.

**Mortality & Morbidity Conference**

3rd Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

**OB/GYN Dept. Meeting**

2nd Thursday, 2 p.m., Contact: J. Wurzel, M.D.

**OB/GYN Pathology Conference**

Weekly, Thursday, except 2nd, Contact: J. Wurzel, M.D.

**OB/GYN Sonograph/X-ray Conference**

4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

**Clinical Pathology**

5th Thursday, 12:30 p.m., Contact: J. Fleishman, M.D.

**Renal Conference**

1st Friday, 12:30 p.m., Contact: T. Pence, M.D.

**Hematology Conference**

2nd & 4th Friday, Contact: S. Ketchel, M.D.

**Rheumatology Conference**

3rd Friday, 12:30 p.m., Contact: J. Goldberger, M.D.

**Chest Conference**

5th Friday, 12:30 p.m., Contact: D. Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008  
**Continuing Medical Education Program**  
Every other Wednesday, 7-8 a.m.

**Clinical Conferences**

2nd & 4th Wednesday, 12-1 p.m., Medical Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008.  
Contact: Leonard Tamsky, M.D.

**Medicine Conference**

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

**Chest Surgery Conference**

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

**Hematology Conference**

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

**OB/GYN Dept. Grand Rounds**

Weekly Tuesday, 12 Noon, Santa Cruz Room

**Obstetrical Problem Conference**

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

**Orthopedic Conference**

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

**Pediatric Grand Rounds**

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

**Urology Discharge Planning Conference**

Weekly, 11:30 a.m., Station 42

**Hand Surgery Conference**

Weekly Wed, a.m., Santa Cruz Rm.

**Neurosurgery Discharge Planning**

Weekly Wed., 1:30 p.m., Station 42.

**OB/Neonatology Seminar**

Weekly, Wed. 7:30 a.m., Yavapai Rm.

**Clinical Psychiatric Conference**

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

**Surgery Conference**

Weekly Wed., 7-8 a.m., Surgical Dept.

**Current Concepts in Medicine & Surgery**

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

**Cardiology Conference**

Weekly Thurs., 2 p.m., Santa Cruz Rm.

**OB/GYN Resident Conference**

Weekly Thurs., 12 p.m., Yavapai Rm.

**GYN Endocrine Seminar**

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

**OB/GYN Surgical Pathology Conf.**

Weekly Friday, 7:30 a.m., Yavapai Rm.

**Orthopedic X-Ray Conference**

Weekly Friday, 7:30 a.m., Santa Cruz Rm.

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.  
Contact: Leonard M. Lapenson, M.D.,  
Approved for category 1 credit.

**Clinical Conferences**

1st & 3rd Tuesdays, 12 noon, 5th floor auditorium.

**CPC or Medical-Surgical Forum**

4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.  
Contact: Leland L. Fairbanks, M.D.,  
Approved for category 1 credit.

**Pediatric Grand Rounds**

1st Tuesday, 7:30-8:30 a.m., Contact: D. Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**

Wed. Weekly, 8:00 a.m.

**Otolaryngology Grand Rounds**

4th Wednesday, 4-5 p.m., Conference Rm. A, Contact: N. Wendell Tood, M.D.

**Family Practice/Emergency Room Teaching Conference**

Thursday Weekly, 7:30-8:30 p.m., Conf. Rm. A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact: George Scharf, M.D. Approved for category 1 credit.

**Monthly Medical Education Seminar**

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

**Clinical Conferences**

Weekly Tuesday, 12:30 p.m., Kiva Conference Rm.

**Tumor Board Conference**

Weekly Friday, 12 p.m., Kiva Conf. Rm. Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85261.  
Contact: W. S. Williams, M.D., Approved for category 1 credit.

**Family Practice Conference**

1st Monday, 12:30 p.m., Doctors' Lounge

**Emergency Medical Services Conference**

2nd Monday, 12:30 p.m., Doctors' Lounge

**Neurology/Neurosurgery Conference**

3rd Monday, 12:30 p.m., Doctors' Lounge

**CPC Conference**

4th Monday, 12:30 p.m., Doctors' Lounge

**Pediatrics Conference**

5th Monday, 12:30 p.m., Doctors' Lounge

**Pulmonary Conference**

1st Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiology Conference**

2nd Tuesday, 12:30 p.m., Doctors' Lounge

**Surgery Conference**

3rd Tuesday, 12:30 p.m., Doctors' Lounge

**Resident Grand Rounds**

4th Tuesday, 12:30 p.m., Doctors' Lounge

**Medical Subspecialties**

5th Tuesday, 12:30 p.m., Doctors' Lounge

**Urology Conference**

3rd Thursday, 12:30 p.m., Doctors' Lounge

**Tumor Conference**

4th Thursday, 12:30 p.m., Doctors' Lounge

**GI/Med/Surg/Radiology Conference**

2nd Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85018.  
Contact: Joseph C. White, M.D.

**OB/GYN Section Conference**

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor Conf. Rm.

**Genetics Conference**

Weekly Monday, 12:30 p.m., Pediatric Department.

**Pediatric Rounds**

Weekly Monday, Wed. & Friday, 10:30 a.m., Pediatric Department.

**Pediatric Grand Rounds**

4th Tuesday, 7:30-8:30 a.m., Contact: J. Kimball, M.D.

**ECG Conference**

Weekly Tuesday, 12:30 p.m., Pediatric Department.

**Medical Grand Rounds**

Weekly Wednesday, 8 a.m., 1st Floor Conference Room.

**Visiting Professor Formal Presentation**

Weekly Thursday, 8 a.m., PIMC

**Visiting Professor Informal Presentation**

Weekly Thursday, 9:30 a.m., 1st floor Conference Room.

**Visiting Professor Formal Presentation**

Weekly Thursday, 12:30 p.m., PIMC



**ephrology Conference**  
Weekly Fridays, 12:30 p.m., Pediatric  
Department

## **ST. JOSEPH'S HOSPITAL (THMEP) TUCSON**

50 N Wilmot Road, Tucson, AZ. Contact:  
Eric G Ramsay, M.D. Approved for Category  
credit.

**Family Practice Department Meeting**  
1st Tuesday, 12 p.m., Contact: Wm.  
Moteforte.

**Ophthalmology Morbidity/Mortality Conf.**  
1st Tuesday, 12:15 p.m., Contact: Kim  
Dowd.

**Current Concepts in Medicine**  
Weekly, Tuesday, 12 p.m., Auditorium.

**Hematology-Oncology Conference**  
1st Wednesday, 12:15-1:15 p.m., Contact: S.  
Almon, M.D.

## **ST. LUKE'S HOSPITAL MEDICAL CENTER**

25 North 18th Street, Phoenix, AZ. Contact:  
Gerald L. Hansbro, M.D.

**Cardiac Conference**  
Weekly Monday, 12:15 p.m., Auditorium

**Surgery Conference**  
1st Tuesday, 12:15 p.m., Auditorium

**Emergency Medicine Conference**  
1st Wednesday, 12:15 p.m., Auditorium

**Cardiovascular-Thoracic Record Review**  
1st Wednesday, 12:15 p.m., Auditorium

**Psychiatry Conference**  
1st Thursday, 7 a.m., Auditorium

**Combined Medical General Practice  
Conference**

1st Friday, 12:15 p.m., Auditorium

**Toxicology Grand Rounds**  
1st Friday, 7:30 a.m., Auditorium

**Ophthalmology Conference**  
1st Saturday, 8:30 a.m., Auditorium.

## **ST. MARY'S HOSPITAL & HEALTH CENTER**

3601 W. St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.

**Monthly Specialty Conference-Dept. of  
Surgery**

1st Monday, 7:30 a.m., Century Rm. A.,  
Contact: Med. Staff Office.

**Grand Rounds: Medical Surgical, Family  
Practice, Pathology, Radiology**

Weekly Thursday

**Emergency Medicine Lectures**

Weekly Thursday, 8 a.m., Century Room A.

**Mental Health Update**  
1st Friday, 11:30-1:00 p.m., Century Rm. A.

**Cardiology Conference**  
Weekly Friday, 8:00-9:00 a.m., Century Rm.,  
Contact: Anthony Forte, M.D.

## **TUCSON MEDICAL CENTER (THMEP)**

3601 E. Grant Road, Tucson, AZ 85716.  
Contact: Eric G. Ramsay, M.D. Approved for  
category 1 credit.

**Cardiology Conference**

Weekly Monday, except last, 12 Noon,  
Contact: J. Fernandez, M.D.

**Dermatology Conference**

1st Monday, 5:00 p.m., Contact: R. Miller,  
M.D.

**Endocrinology Conference**

Last Monday, 12 p.m., Contact M. Parker,  
M.D. **Perinatal Conference**

2nd Monday, 7:30 p.m., Contact: J. Lohman,  
M.D.

**Chest Conference**

3rd Tuesday, 12 noon, Contact: William  
Nevin, M.D.

**Hematology Conference**

4th Tuesday, 12 Noon, Contact: M. Boxer,  
M.D.

**Infectious Disease Conference**

2nd Tuesday, 12 noon, Contact: B. Friedman,  
M.D.

**Nephrology Conference**

1st Tuesday, 12 noon, Contact: Dr. Seltzer.

**Orthopedic Conference**

1st Tuesday, 8:00 p.m., Contact: Jay Katz,  
M.D.

**Pediatric Grand Rounds**

1st & 3rd Tuesday, 12:30 p.m., Contact: Dr.  
Lightner.

**Cardiac Cath. Conference**

2nd & 4th Wednesday, 5:15 p.m., Contact: L.  
Buckels, M.D.

**Clinical Pathology Conference**

Last Wednesday, 8:00 a.m., Contact: Dr.  
Fuchs.

**Family Practice Meeting**

2nd Wednesday, 12:30 p.m., Jan., April, July,  
& Oct. Contact: C. Mangelsdorf, M.D.

**Medical Conference**

Weekly Wednesday, 8:00 a.m., Contact: M.  
Fuchs, M.D.

**Neurology-Neurosurgery Conference**

Weekly Wednesday, 12 noon, Contact: H. W.  
Buschsbaum, M.D.

**Dermatology Conference**

1st Thursday, 12 noon, Contact: R. Friedman,  
M.D.

**Neuroradiology Conference**

Weekly Thursday, 5:00 p.m., Contact: N  
Komar, M.D.

**Tumor Conference**

Weekly Thursday, 12 noon, Contact: Dr.  
Hastings.

**G—I Conference**

Weekly Friday, 12 noon, Contact: C. Krone,  
M.D.

**Interhospital Nuclear Medicine Conference**

Weekly Friday, 7:15 a.m., Contact: S.V. Hiltz,  
M.D.

**OBGYN Conference**

1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

**OBGYN Pathology Conference**

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

**Surgical Department Conference**

Weekly Saturday, 7:30 a.m., Contact: Dr.  
Hastings, TMC.

**Surgical Grand Rounds**

Weekly Saturday, 9:00 a.m., UAHSC-Room  
5403, Contact: Dr. Norton.

## **PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER**

7th Street and Indian School Road, Phoenix,  
AZ 85012. Contact: Alfred Heibrunn, M.D.  
Approved for Category 1 credit.

**GI X-Ray Clinical Correlation Conf.**

1st & 3rd Monday, 1 p.m., Rm. C435, Contact:  
Drs. Sanowski, & Nielsen.

**Medical/Surgical GI Conference**

1st & 3rd. Mondays, 3 p.m., Rm. 3134,  
Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext  
493.

**GI Pathology Conf.**

2nd & 4th Monday, 1 p.m., Path Conf Rm.  
Contact Dr. Sanowski.

**GI Grand Rounds**

Weekly Tuesday, 1 p.m., Contact. Drs.  
Sanowski, Kozarek & Partyka

**Cancer Symposium**

Weekly Wed., 1 p.m., T-5, Contact: Dr Byrne,  
Ext. 426.

**Housestaff Pulmonary Disease Teaching  
Conf.**

Weekly Wed., 3-4 p.m., Contact. Dr.  
Rohwedder, Ext. 388.

**Medical Surgical Chest Conference**

1st & 3rd Thursday, Contact: Dr. Rohwedder  
or Dr. Gill.

**Cardiology Conference**

2nd Thursday, 1 p.m., Rm. T-5

**Consultant Rounds**

1st Thursday, 1:30 p.m., Contact. Dr. Harlan

**Consultant Rounds**

2nd Thursday, 11:00 a.m., Contact. Dr.  
Schaffner

**Consultant Rounds**

4th Thursday, 8:00 a.m., Contact. Dr.  
Severino

**Medical Service Grand Rounds**

Weekly Friday, 11 a.m., Contact. Dr. Zeller

**GI Resident Conference**

Weekly Friday, 1:00 p.m., D446, Contact: Drs.  
Grobe, Phelps, Sanowski and Kozarek.

**Surgical Journal Review & Videotape Session**

Weekly 1 p.m., Room 3134

## **PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER**

Prescott, Arizona 86313. Contacts listed  
below. Approved for category 1 credit.

**Medical Lectures**

1st & 2nd Thursday & Weekly, Fridays, 1:30  
p.m., Bldg. 28. Contact: J. W. Fitzharris, D.O.

**GI Rounds**

1st Thursday, 10 a.m.-2:30 P.M., Contact.  
J. W. Fitzharris, D.O.

**Grand Rounds**

Weekly Thursdays, 11 a.m., Bldg. 107.  
Contact: J. W. Fitzharris, D.O.

## **TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)**

3601 South Sixty Ave., Tucson, AZ 85723.  
Contacts listed below. Approved for category  
1 credit.

**Medical Surgical Chest Conference**

Weekly Tuesday, 2 p.m., Contact: Dr. Young

**Medical Grand Rounds**

Weekly Wed., 12-1:00 p.m., VA Hospital Staff  
Conf. Rm. & (AHSC), Contact: Jay Smith,  
M.D.

**Surgical Grand Rounds**

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

**Endocrinology Seminar**

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm.  
N318, Contact: Dept. of Internal Medicine.

**Grand Rounds**

Weekly, Thursday, 11 a.m., Bldg 107,  
Contact: J. Fitzharris, D.O.

**Vascular Radiology, Interesting Case Conf.**

Weekly Thursday, 12:00 noon.

**Neurology Grand Rounds**

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

### **Radiology Conference**

1st Tuesday, 7:00 a.m.

### **Operation Outreach**

2nd Tuesday, 6:30 p.m.

### **Pathology Conference**

4th Tuesday, 7:00 a.m.

### **Operation Outreach**

2nd Wednesday, 7:00 a.m.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson, AZ 85724. Robert M. Anderson, M.D., Dir. of CME. Contact: See below. Approved for category 1 credit.

### **Anesthesiology Board Review Conference**

2nd & 4th Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contacts: Dr. Vaughn & Kryc.

### **Anesthesiology Basic/Clinical Sciences Lectures**

Weekly Thursday, 4-5 p.m., Room 5403

### **Anesthesiology Case Discussion**

Weekly Wed., 7:00 a.m., AHSC, Dining Rm. C&D.

### **Anesthesiology Resident Presentation**

1st Monday, 4-5 p.m., AHSC Dining Room, C&D, Contacts: Drs. Otto & Zehngut.

### **Cancer Center Tumor Board Seminar**

3rd Tuesday, Monthly, 12-1 p.m., HSC Auditorium, Contact: Cancer Center

### **Cardiac Catheterization Conference**

Weekly Friday, 4:00 p.m., Contact: Dr. Temkin.

### **Cardiology Research Conference**

Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

### **Tucson Cardiovascular Society**

1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

### **Clinical Immunology, Allergy & Rheumatology Rounds**

Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

### **Cerebrovascular Disease Conference**

Mondays, 5-6 p.m., Weekly, Rm. 5505. Contact: Jerry Goldston, M.D., Department of Surgery.

### **Dermatology Rounds**

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

### **Endocrinology Seminar**

Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

### **Emergency Medicine Grand Rounds**

Tuesdays, 9 a.m., AHSC, Contact: Dr. Sanders.

### **GI Pathology Conference**

4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

### **GI Radiology Conference**

2nd. & 4th Mondays, 7:30 a.m., AHSC, Contact: Dr. T. Hunter

### **Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact: Dr. Manning

### **Hematology-Oncology Clinical Conference**

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact: S. Salmon, M.D., Dept. of Internal Medicine.

### **Medical Grand Rounds**

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

### **Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

### **Neuropathology Review Conference**

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

### **Neuroradiology Conference**

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

### **Neuromuscular Journal Conference**

2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

### **Neuropathology Case Review**

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

### **Neurosciences Seminar**

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

### **Nuclear Medicine**

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

### **Ophthalmology Grand Rounds**

3rd Friday, 7:30 a.m., AHSC, Contact: Dr. J. Herschler

### **Orthopedic Rounds**

Saturday, 8:00 a.m., Contact: Dr. Peltier.

### **Pain Conference**

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

### **Pathology Seminar**

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

### **Tucson Pathologist Conference**

1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

### **Pediatric Grand Rounds**

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

### **Pediatric Problem Patient Conference**

Weekly Wed., 8:00 a.m., Contact Dr. Walson

### **Pediatric Research Forum**

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

### **Pediatric Specialty Conference**

Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

### **Psychiatric Grand Rounds**

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

### **Psychiatric Monthly Case Conference**

2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

### **Pulmonary Rounds**

Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

### **Chest Radiology**

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

### **Neuroradiology Teaching Conference**

Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

### **Radiation Oncology Planning Conference**

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

### **Radiology Interesting Case Conference**

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

### **Gastrointestinal Radiology**

Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

### **Radiology-Rheumatology Conference**

Weekly Thursday, 7:45 a.m., UAHSC, Librar Rm.1535C.

### **Uroradiology (Genitourinary Radiology)**

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC Contact: Dept. of Radiology

### **Renal Pathology Conference**

1st & 3rd Thurs., 11:30 a.m., Contact: D Nagle.

### **Residents Noon Conference**

Weekly Tuesday & Thursday, 12:00 noon AHSC, Contact: Dr. A. Greensher.

### **Resident's Conference**

Wednesday, weekly 5-6 p.m., Diag Radiology Conf. Rm.

### **Surgical Grand Rounds**

Saturdays, 9:00 a.m., Rm. 5403, AHSC Contact: Dr. Wangenstein.

### **Surgical Morbidity & Mortality Conference**

Weekly Wed., 8:00 a.m., Contact: D Wangenstein.

### **Vascular Surgery Conference**

Weekly Tuesdays, 5-6 p.m., AHSC Dinin Room E.

### **Joint Thyroid Conference**

1st & 3rd Wed., Contact: S. C. Werner, M.D.

### **Trauma Conference**

Monday, 4:00 p.m. UAHSC, Rm. 4410 Contact: Dr. Peltier.

### **Toxicology Conference**

Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes Section.

### **Tucson Ultrasonography Group**

Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. Freundlich.

### **General Urology Conference**

Weekly Thursday, 12:00 noon, AHSC & V Hospital Contact: Dr. G. W. Drach.





**works well in your office...**

# NEOSPORIN® Ointment

(polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**works just as well in their homes.**



- It's effective therapy for abrasions, lacerations, open wounds, primary pyodermas, secondarily infected dermatoses.

- It provides broad-spectrum overlapping antibacterial effectiveness against common susceptible pathogens, including staph and strep.

- It helps prevent topical infections, and treats those that have already started.

- It contains three antibiotics that are rarely used systemically.

- It is convenient to recommend without a prescription.

**NEOSPORIN® Ointment—for the office, for the home.**  
(polymyxin B-bacitracin-neomycin)

**Effective • Economical • Convenient • Recommendable**

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**WARNING:** Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neomycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as a failure to heal. During long-term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

**PRECAUTIONS:** As with other antibacterial preparations, prolonged use may result in overgrowth of non-susceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

**ADVERSE REACTIONS:** Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section). Complete literature available on request from Professional Services Dept. PML.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709

# COMPUTED TOMOGRAPHY OF THE HEAD



## **CNS** Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207•  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully  
bound books. Choose from 30 different  
colors of durable Library Buckram

\$14.00 per volume, (name imprint.75)

\$15.50 Imitation Leather, (rules .25 each)

Inquire about quantity discounts.

Free local pickup and delivery on 10 volumes  
or more

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338

## YOU WORKED HARD

FOR THAT  
DIPLOMA..



why not have it  
laminated?

it will last a lifetime....

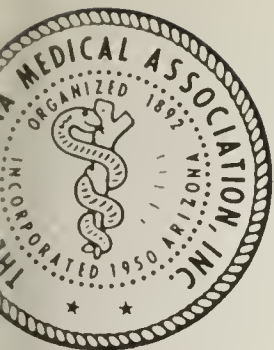
## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.

7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338





# THE ARIZONA MEDICAL ASSOCIATION, INC.

## “SECURITY PACKAGE”

The key word in any insurance program is security. ArMA's Board of Directors, working with the Medical Economics Committee and ArMA staff, has sponsored carefully designed insurance programs placed with excellent companies. The set-up of the over-all administration and local servicing assures you of prompt and courteous service in the unhappy event that you or your family should have a claim. Programs with service you can count on: **That's Security.**

The **Dean S. Davidson Insurance Agency, Inc.**, with over 40 years of experience in all lines of insurance (including several Arizona associations), and offices in Phoenix and Tucson, provides local service for all members. Should you need assistance at any time, trained personnel are available by phone or in person to assure efficient, thorough handling of your insurance programs.

The **Southern California Agency** has been working with ArMA for almost 30 years. Its affiliate, **Health Agencies of the West, Inc.**, coordinates the full administration (marketing, underwriting, billing, and claims services) of all insurance programs. They are specialists in professional association group insurance, who provide the finishing touches to our “SECURITY PACKAGE”.

### Term Life Insurance

underwritten by  
Fireman's Fund  
American Life Insurance Company



### Defendant's Reimbursement Insurance



underwritten by  
National Casualty Company

### Spouse Life Insurance

underwritten by  
Lincoln American Life  
Insurance Company



### Professional Overhead Expense Insurance



underwritten by Occidental Life  
Insurance Company of California

### Disability Income Insurance

underwritten by  
National Casualty Company



*Administered by*

### Accidental Death & Dismemberment Insurance



underwritten by  
Fireman's Fund  
American Life Insurance Company

## HEALTH AGENCIES OF THE WEST, INC.

*And Locally Serviced by*

### DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200  
Phoenix, Arizona 85016  
(602) 277-6672

630 Craycroft Road  
Tucson, Arizona 85711  
(602) 745-0793

## MEDICAL X-RAY SYSTEM WITH AUTOMATIC PROCESSOR

**Bennett 300Ma at 125Kv Solid State Generator** 1/120 Second solid state timer/SCR contactor

**Bennett Horizontal Radiographic Deluxe Table** Par speed bucky, 60 line 12:1 grid

**Bennett Floor/Ceiling Tubestand**, Heavy-Duty Vertical travel 58" longitudinal travel 82" Electric locks, angulation-height-distance scale  
**Dial-X Fully Automatic Motor-Driven Collimator** Positioning light and timer

**Machlett X-Ray Tube**, 1 & 2mm, 140,000 H.U.

Pair H.V. Cables, Federal Standard

14x17 Wall Cassette Holder, BRH Sensing

**ECOMAT Automatic Film Processor**, "Energy Saver" Water saver automatic shut-off valve Base, 6-gallon fixer and developer tanks.

2- 14x17 Cassettes with Hi Speed & Detail Screens

2- 10x12 Cassettes with Hi Speed & Detail Screens

2- 8x10 Cassettes with Hi Speed & Detail Screens

2- 14x17 Illuminators, wall or desk-mounted

1- Lead Apron 32", .5mm

1- Lead Marker Set

1- Lead Film Blocker 7X17

1- Darkroom Film Bin

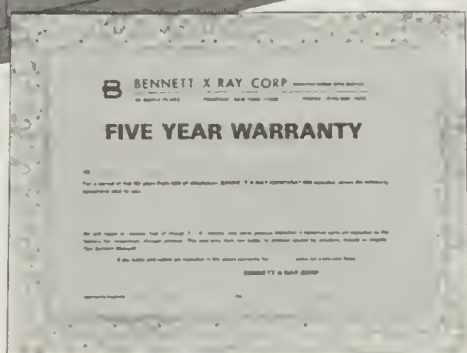
1- CM and Inch Caliper

1- Darkroom Safelite and Filter

**Total, installed \$23,812.00**

*Plus tax and freight*

**Price includes 5-year warranty  
on all parts including the  
x-ray tube.**



**WESTERN X-RAY SYSTEMS, INC.**

7825 E. REDFIELD ROAD, BLDG. F

SCOTTSDALE, ARIZONA 85260

(602) 998-3008





# Another good reason to insure with MICA is YOUR Automatic “Tail” Coverage

MICA provides “tail” coverage automatically and without any additional charge to those physicians who are permanently disabled, as described in the policy, to the estates of those who are deceased, and to those physicians who retire at age 65. Other companies may charge retired physicians for this feature. This feature should be thoroughly investigated before purchasing the insurance.

This automatic “tail” coverage offers to you the security of converting the policy to a status whereby protection is provided for incidents which occurred during the policy period but are not reported until after that policy period has ended.

**For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402**

MICA MICA MICA MICA MICA

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association

## INSTITUTE FOR HUMAN SERVICES, INC.

Drug Abuse Treatment Unit  
St. Luke's Hospital Medical Building  
421 North 18th Street, Suite 103  
Phoenix, Arizona 85006  
(602) 257-8089

*Henri A. Moyal, M.D., Medical Director • Harriette Lurie, Drug Abuse Coordinator*

- The Drug Abuse Treatment Unit provides specific care for individuals addicted to narcotics, either street drugs or major pain relieving drugs.
- The program's goals are to provide awareness and insight that facilitate psychological adjustment and allow the patients to meet personal and social responsibility and eventually to achieve a drug free state.
- Our services include psychotherapy: individual, family, marital and group. Inpatient care is available through St. Luke's Hospital facilities.
- For further information regarding the Drug Abuse Treatment Unit, please call our offices at 257-8089.

# This publication is available in microform.



### University Microfilms International

Please send additional information  
for \_\_\_\_\_  
(name of publication)

Name \_\_\_\_\_  
Institution \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, MI 48106  
U.S.A.

30-32 Mortimer Street  
Dept. P.R.  
London W1N 7RA  
England



# Practice what we teach.

Today there are over 31 million men, women and children suffering from the many forms of arthritis and related rheumatic diseases. And there just aren't enough trained rheumatologists to help them.

That's why arthritis sufferers need your help.

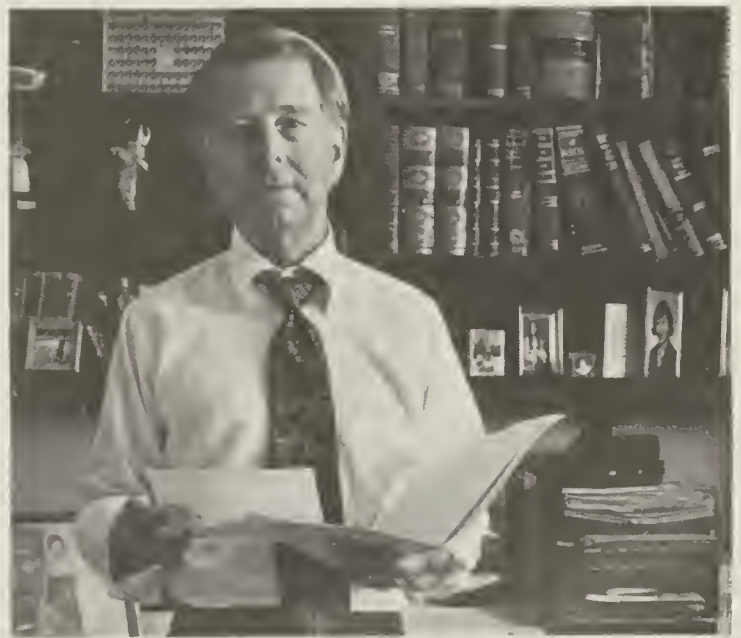
They must depend heavily on the family practitioner for better diagnosis, more effective patient treatment.

Contact your local Arthritis Foundation chapter for the latest information on arthritis. This includes continuing educational seminars by leading rheumatologists, scientific meetings, "outreach" programs — as well as the "Bulletin on the Rheumatic Diseases," "Arthritis and Rheumatism Journal," "Primer on the Rheumatic

Diseases," audio cassettes and other professional materials. Free disease handbooks and medication pamphlets are also available to patients.

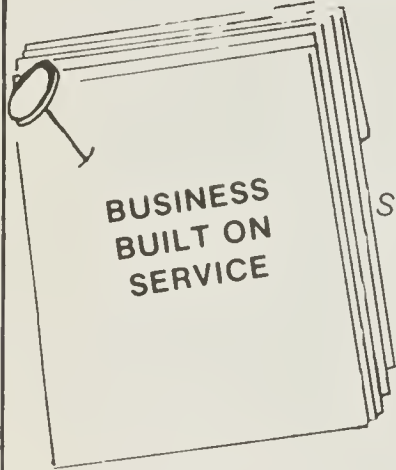
Please. Let us help your practice with what we teach.

The Arthritis Foundation helps doctors help.



# Classified

## GUARANTEED SAVINGS!!



Billing and mailing  
same — day services

*Statements made from your  
ledgers at your office*

**House of Mailings**  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708

### Louis Jacob

General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



**We Want You With Us**



**L. Louis Jacob Agency**

Complete Insurance Services  
Call Us for an Auto Quote

### DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

*Tired of all that money going out?*

**For a competitive Quote on:**

- Physicians & Surgeons Malpractice •
- Office Package •
- Automobile •
- Homeowners •



### PHOENIX-AMERICAN INSURANCE AGENCY

1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*



**Relief of Headaches  
Concerning Practice  
Management Problems.**



**J. Prekup & Assoc.**

**Problem Solvers for the Medical Profession.**

3033 N. Central, Suite 509-C Phoenix, Az 85012  
(602) 279-1884

### DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"



## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### CLINIC PHYSICIAN POSITION

is available July 1, 1981. Large, active, well-staffed clinic. 500 plus bed teaching hospital. Prefer Internal Medicine background. Apply: Department of Medicine, Maricopa County General Hospital, 2601 East Roosevelt Street, Phoenix, AZ 85008.

### FAMILY PRACTICE

M.D. retiring after 35 years in central Phoenix location. Selling practice, real estate (includes two rentals), equipment & furnishings. Seller will work with buyer during transition. Negotiable \$30,000 down & seller will finance balance of \$110,000 for 15 years at 10%. Contact Charles Moore, Allan Jeffries Realty, Inc. 1001 N. Central, Phoenix, AZ 85004. Phone (602) 252-6736.

### OB/GYN AVAILABLE

For solo practice; partnership considered. New York University trained; speaks fluent French and Spanish. Available July 81. C.V. on request. Aldy Castor, M.D., 1350 15th Street, Apt. 14J, Fort Lee, New Jersey 07024. (212) 654-5100 work, or (201) 386-0184 home.

### CARDIOLOGIST

For private practice Phoenix suburb. Must have experience in arrhythmia control, cardiac catheterization and intensive care medicine. Degree in Medicine and minimum nine years internship, residency and fellowship training required. \$50,000 per year. Send replies to Box 601, c/o Arizona Medicine, 810 West Bethany Home Road, Phoenix, AZ 85013.

## REAL ESTATE

### ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### MEDICAL SUITE FOR LEASE - CHANDLER

1000 sq. ft., garden suite available in North Chandler Medical Center, designed for medical tenant. Excellent lease and location. Contact: John Foltz, (602) 948-9450.

### DOCTOR SPACE AVAILABLE

Completely remodeled; 1000 Square feet; 7th Street and Dunlap, Phoenix, Az. Assume lease; with or without furniture; includes plumbing; leaded operational x-ray facility. Call (602) 931-9104 Days.

### MEMORIAL MEDICAL OFFICE BUILDING

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

### BEAUTIFUL CONDOMINIUM

Condominios Pilar  
San Carlos Bay, Mexico  
For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

### HOUSE FOR SALE

By owner; 4-bedroom, pool; guest room; living room; dining room; large kitchen; 2 car garage; 8 3/4 % mortgage, \$139,500. 1422 W. Tuckey Lane, Phoenix. (602) 242-2026.

### FOR RENT

Home in Flagstaff, 3 Bedrooms, 2 bathrooms (Maximum 7 people). For information call.

### SCOTTSDALE, ARIZONA

Two Scottsdale, Arizona, internists wish to share office space and expenses. Internal Medicine sub-specialty desired. New office space completely furnished with modern diagnostic equipment including x-ray and treadmill. Call (602) 991-9120 or reply to Box 126, c/o Arizona Medicine, 810 W. Bethany Home Road, Phoenix, Arizona 85013.

### PINETOP MOUNTAIN CABIN - FOR RENT

White Mountain summer home. Ideal now for Spring time activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

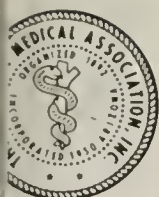
### FOR SALE

We have a licensed supervisory care home in Bisbee. Capacity of 42 patients for sale. Beautiful Climate, Beautiful View, Price Negotiable, Sprinkler system throughout, Call (602) 364-5111, 364-2356, 364-9350.

## INDEX TO ADVERTISERS

|                                                                        |                    |                                              |                           |
|------------------------------------------------------------------------|--------------------|----------------------------------------------|---------------------------|
| AirEvac .....                                                          | 418                | Institute of Human Services .....            | 488                       |
| American Red Cross .....                                               | 464                | Louis Jacobs .....                           | 490                       |
| The Anesthesia Office, Inc. ....                                       | 425                | John C. Lincoln Hospital .....               | 426                       |
| Arizona Laminating .....                                               | 484                | Medical Bookstore .....                      | 412                       |
| Arizona Micro-Print &<br>Statement Service .....                       | 419                | Merrell Dow Pharmaceuticals<br>Tenuate ..... | 466, 467                  |
| Ben-Ora Imaging Ltd. ....                                              | 426                | Mica Insurance Co. ....                      | 487                       |
| Blue Cross/Blue Shield .....                                           | 420                | Mountain Bell .....                          | 423                       |
| Boots Pharmaceuticals<br>FEP-Creme, SU-TON, Twin K,<br>Twin K-Cl ..... | 427, 428, 429, 430 | Van O'Steen & Partners .....                 | 416                       |
| Bristol Laboratories<br>Tegopen .....                                  | 414, 415           | Phoenix/American Insurance .....             | 490                       |
| Burroughs Wellcome<br>Neosporin Ointment .....                         | 483                | Prekup and Associates .....                  | 490                       |
| Camelback Hospital .....                                               | 424                | Roche Labs<br>Librax .....                   | 464, 465                  |
| Classified Ads .....                                                   | 490, 491           | Limbitrol .....                              | Second Cover, 410, 411    |
| Computed Neurological Scanning Center .....                            | 484                | Valium .....                                 | Third Cover, Fourth Cover |
| Doctors Central Directory .....                                        | 490                | Roswell Bookbinding .....                    | 484                       |
| Eli Lilly & Co.<br>Ceclor .....                                        | 413                | Sequoia Group, Inc. ....                     | 463                       |
| HBA Life Insurance .....                                               | 422                | Danny T. Sievert<br>Insurance .....          | 490                       |
| Health Agencies of the West .....                                      | 485                | Valley National Bank .....                   | 417                       |
| House of Mailings .....                                                | 490                | Western X-Ray Systems, Inc. ....             | 486                       |
|                                                                        |                    | Western Physician<br>Purchasing Assoc. ....  | 421                       |





# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

SN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

In this issue are scientific papers from the Arizona Regional Meeting of the American College of Physicians and Highlights from the 1981 Annual Meeting of ArMA.

## SEMINARS IN CONTINUING EDUCATION

### ARTHRITIS

- HLA-B27 Related Arthropathies in  
Hopi and Navajo Indians ..... 510  
*Harold G. Morse, M.D., et al.*

### CARDIOLOGY

- The MB Creatine Kinase Isoenzyme ..... 513  
*Arthur Pelberg, M.D.*

### CHEST MEDICINE

- Autoantibodies In Cryptogenic  
Fibrosing Alveolitis ..... 516  
*Brendan D. Thomson*

### ENDOCRINOLOGY & METABOLISM

- Effect of Blood Sugar Control on the  
Microangiopathy of  
Diabetes Mellitus ..... 519  
*M. Antonia Verso, M.D., et al.*

### GASTROENTEROLOGY & LIVER DISEASE

- Endoscopic Papillotomy in Complicated  
Biliary Tract Disease ..... 521  
*Richard A. Kozarek, M.D., et al.*

### ONCOLOGY

- Immunologic and Cytochemical  
Characterization of Lymphoreticular  
Malignancies ..... 524  
*Thomas M. Grogan, M.D., et al.*

### SURGERY

- Scrotal Cystocele ..... 528  
*MacDonald Wood, M.D.*

## SPECIAL ARTICLE

- Housestaff Evaluation Using  
Patient Instructors: A Brief Report ..... 531  
*Paul J. Rutala, M.D., F.A.C.P., et al.*

## EDITORIALS

- Laboratory Tests in Immunological  
Diseases - Teaching Cost Containment ... 533  
*John T. Boyer, M.D., et al.*
- Auxiliary Highlights  
"Just Tremendous!" ..... 534

## SPECIAL FEATURE

- America is a Land  
of Wonders ..... 535  
*Daniel T. Cloud, M.D.*

## ANNUAL MEETING HIGHLIGHTS

- Presidential Address ..... 538  
*Clyde W. Kurtz, M.D.*
- Resume of the House of Delegates ..... 541
- ArMA Auxiliary Workshops  
Did you Get the Message? ..... 550
- ArMA Convention Awards ..... 553

## ARMA REPORTS

## FUTURE MEETINGS

- ..... 556
- ..... 557

LIBRARY  
U.C. SAN FRANCISCO

JUL 23 1981

THE LIBRARY, ACQUISITIONS DIV.

II, NO. 7

# Feelings vs

*Some people feel that I am misused and overused and that I'm prescribed too often and for too many kinds of problems.*

The FACT is that approximately eight million people, or about 5 percent of the U.S. adult population, will use me during the current year. By contrast, the national health examination survey (1971-1975) found that 25 percent of the U.S. adult population experiences moderate to severe psychological distress. Additionally, studies of patient attitudes revealed that most patients have realistic views regarding the limitations of tranquilizers and a strong conservatism about their use, as evidenced by a general tendency to decrease intake over time. Finally, a six-year, large-scale, carefully conducted national survey showed that the great majority of physicians appropriately prescribe tranquilizers.

*Some people feel that patients being treated with anxiolytic drugs are "weak," can't tolerate the anxieties of normal daily living, and should be able to resolve their problems on their own without the help of medication.*

The FACT is that while most people can withstand normal, everyday anxieties, some people experience excessive and persistent levels of anxiety due to personal or clinical problems. An extensive national survey concluded that Americans who do use tranquilizers have substantial



# Facts

justification as evidenced by their high levels of anxiety. It was further noted that antianxiety drugs are not usually prescribed for trivial, transient emotional problems.

*Some people feel afraid of me because of the stories they've heard about my being harmful and having the potential to produce physical dependence.*

The FACT is that there are thousands of references in the medical literature documenting my efficacy and safety. Extensive and painstakingly thorough studies of toxicological data conclude that I am one of the safest types of psychotropic drugs available. Moreover, I do not cause physical dependence if the recommended dosage and therapeutic regimen are followed under careful physician supervision. However, I can produce dependence if patients do not follow their physicians' directions and take me for prolonged periods, at dosages that exceed the therapeutic range. Patients for whom I have been prescribed should be cautious about their use of alcohol because an additive effect may result.

*Many of the most knowledgeable people feel that I became the No. 1 prescribed medication in America because no other tranquilizer has been proven more effective. Or safer.*

The FACT is they are right.

For a brief summary of product information on Valium (diazepam/Roche) ®, please see the following page. Valium is available as 2-mg, 5-mg and 10-mg scored tablets.

# Valium® diazepam/Roche

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety, symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy). The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication, abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other anti-depressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d., alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d., adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

**Supplied:** Valium® (diazepam/Roche) Tablets, 2 mg, 5 mg and 10 mg—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10, Prescription Paks of 50, available in trays of 10.



Two convenient dosage forms: 100 mg (white) and 300 mg (peach) Scored Tablets



Tablets imprinted with brand name to assist in tablet identification.



Burroughs Wellcome Co.  
Research Triangle Park  
North Carolina 27709

*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

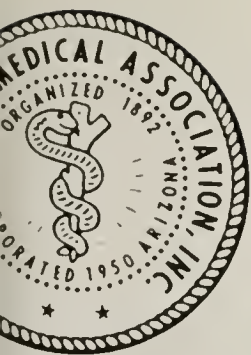
*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.



Roche Laboratories  
Division of Hoffmann-La Roche Inc.  
Nutley, New Jersey 07110





# THE ARIZONA MEDICAL ASSOCIATION, INC.

## “SECURITY PACKAGE”

key word in any insurance program is security. ArMA's Board of Directors, working with the Medical Economics Committee and A staff, has sponsored carefully designed insurance programs placed with excellent companies. The set-up of the over-all inistration and local servicing assures you of prompt and courteous service in the unhappy event that you or your family should a claim. Programs with service you can count on: **That's Security.**

**Dean S. Davidson Insurance Agency, Inc.**, with over 40 years of experience in all lines of insurance (including several Arizona ciations), and offices in Phoenix and Tucson, provides local service for all members. Should you need assistance at any time, trained onnel are available by phone or in person to assure efficient, thorough handling of your insurance programs.

**Southern California Agency** has been working with ArMA for almost 30 years. Its affiliate, **Health Agencies of the West, Inc.**, idinates the full administration (marketing, underwriting, billing, and claims services) of all insurance programs. They are specialists rofessional association group insurance, who provide the finishing touches to our “SECURITY PACKAGE”.

### Term Life Insurance

Underwritten by  
Fireman's Fund  
American Life Insurance Company



### Defendant's Reimbursement Insurance



underwritten by  
National Casualty Company

### House Life Insurance

Underwritten by  
Lincoln American Life  
Insurance Company



### Professional Overhead Expense Insurance



underwritten by Occidental Life  
Insurance Company of California

### Disability Income Insurance

Underwritten by  
National Casualty Company



Administered by

### Accidental Death & Dismemberment Insurance



underwritten by  
Fireman's Fund  
American Life Insurance Company

## HEALTH AGENCIES OF THE WEST, INC.

*And Locally Serviced by*

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200  
Phoenix, Arizona 85016  
(602) 277-6672

630 Craycroft Road  
Tucson, Arizona 85711  
(602) 745-0793

# Another good reason to insure with **MICA** is YOUR Automatic “Tail” Coverage

MICA provides “tail” coverage automatically and without any additional charge to those physicians who are permanently disabled, as described in the policy, to the estates of those who are deceased, and to those physicians who retire at age 65. Other companies may charge retired physicians for this feature. This feature should be thoroughly investigated before purchasing the insurance.

This automatic “tail” coverage offers to you the security of converting the policy to a status whereby protection is provided for incidents which occurred during the policy period but are not reported until after that policy period has ended.

**For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402**

MICA MICA **MICA** MICA

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association



# easy to take



250-mg Pulvules®



## Oral Suspension

250 mg/5 ml  
100 and 200-ml  
sizes

125 mg/5 ml  
60, 100, and  
200-ml sizes



## Pediatric Drops

100 mg/ml  
10-ml size

# Keflex®

cephalexin

Additional information available  
to the profession on request.



000823

Dista Products Company  
Division of Eli Lilly and Company  
Indianapolis, Indiana 46285  
Mfd. by Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630

**PRACTICING MEDICINE  
IS A FULL-TIME JOB...**

**SO IS  
SAVING  
MONEY!**

NAME \_\_\_\_\_ DATE \_\_\_\_\_  
ADDRESS \_\_\_\_\_

**Dx: INFLATION**

**Rx:** Meet the challenge of inflation. Join the WPPA and by-pass the middleman. Order directly from suppliers and save time and money.

Join the Western Physicians Purchasing Association and you'll have more time to do the job you were trained for. While you take care of patients, the WPPA will search out the best in professional equipment and supplies and make them available to you at savings up to 28%. No need to shop around. Just consult the WPPA catalog, contact the vendor directly, and discuss your specific needs. You'll be pleased with the wide choice of supplies that are available and surprised at the amount of money you can save.

The WPPA inventory includes more than 16,000 items, all of them top-quality brand names from reputable manufacturers and suppliers.

- ☐ Medical/surgical and laboratory supply items
- ☐ X-Ray equipment, film, solution, accessories and service
- ☐ Fine instruments for every field of modern surgery
- ☐ Orthopedic soft goods and emergency room supplies
- ☐ Office furniture
- ☐ Automobile purchase and lease plan
- ☐ Aircraft and aircraft equipment and accessories
- ☐ Car rental programs
- ☐ Discounts at leading hotels and motels
- ☐ Medical equipment leasing
- ☐ Computerized medical accounting system
- ☐ Comprehensive laboratory services

For further information and a WPPA catalog, call (602) 774-8692

**WESTERN PHYSICIANS PURCHASING ASSOCIATION**

**WPPA**

Another Membership Benefit of the  
Arizona Medical Association

**AMA**  
ARIZONA MEDICAL ASSOCIATION



# Saddle up for tennis!

The Wickenburg Inn offers a superb combination of sunshine, the romantic Old West — trail rides over 4700 undisturbed acres of magnificent Arizona high desert 60 miles northwest of Phoenix — and the luxury of 11 courts for 51 casitas. Professional instruction is available . . . to complete a perfect setting for an adventure in better tennis.

See your Travel Agent, or call 1-684-7811



**THE WICKENBURG INN**  
Tennis and Guest Ranch

P.O. Box P, Dept. AM  
Wickenburg, Arizona 85358  
(602) 684-7811

| Rates per person from |      |      |
|-----------------------|------|------|
|                       | Dbl. | Sgl. |
| Thru Oct              | \$40 | \$48 |
| Nov & Jan             | 59   | 72   |
| Dec &<br>Feb-Apr      | 70   | 76   |

Two night minimum  
stay — rates include  
all meals, tennis,  
horseback riding.  
Call for clinic rates.



# MEDICAL BOOKSTORE



The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

## MEDICAL BOOKSTORE

College of Medicine  
Arizona Health Sciences Center  
Tucson, Arizona 85724  
Phone: 626-6669

# When we help establish your practice, your primary cares will be solved.

To establish a Primary Care practice, your  
first need is to solve your primary cares.

That's where we come in.

We can offer you a choice of over 60 well  
equipped acute care hospitals coast to coast.  
We can offer you selected financial assistance.  
We can offer you management consulting.

So whether you're interested in a solo,  
partnership, or group practice, contact  
NME today.

We'll help establish your practice.

And solve your primary cares.

For further information, contact:

Raymond C. Pruett, Director, Physician Relations  
National Medical Enterprises  
11620 Wilshire Blvd., Los Angeles, California 90025.  
Call Toll-Free 800-421-7470  
or collect (213) 479-5526.

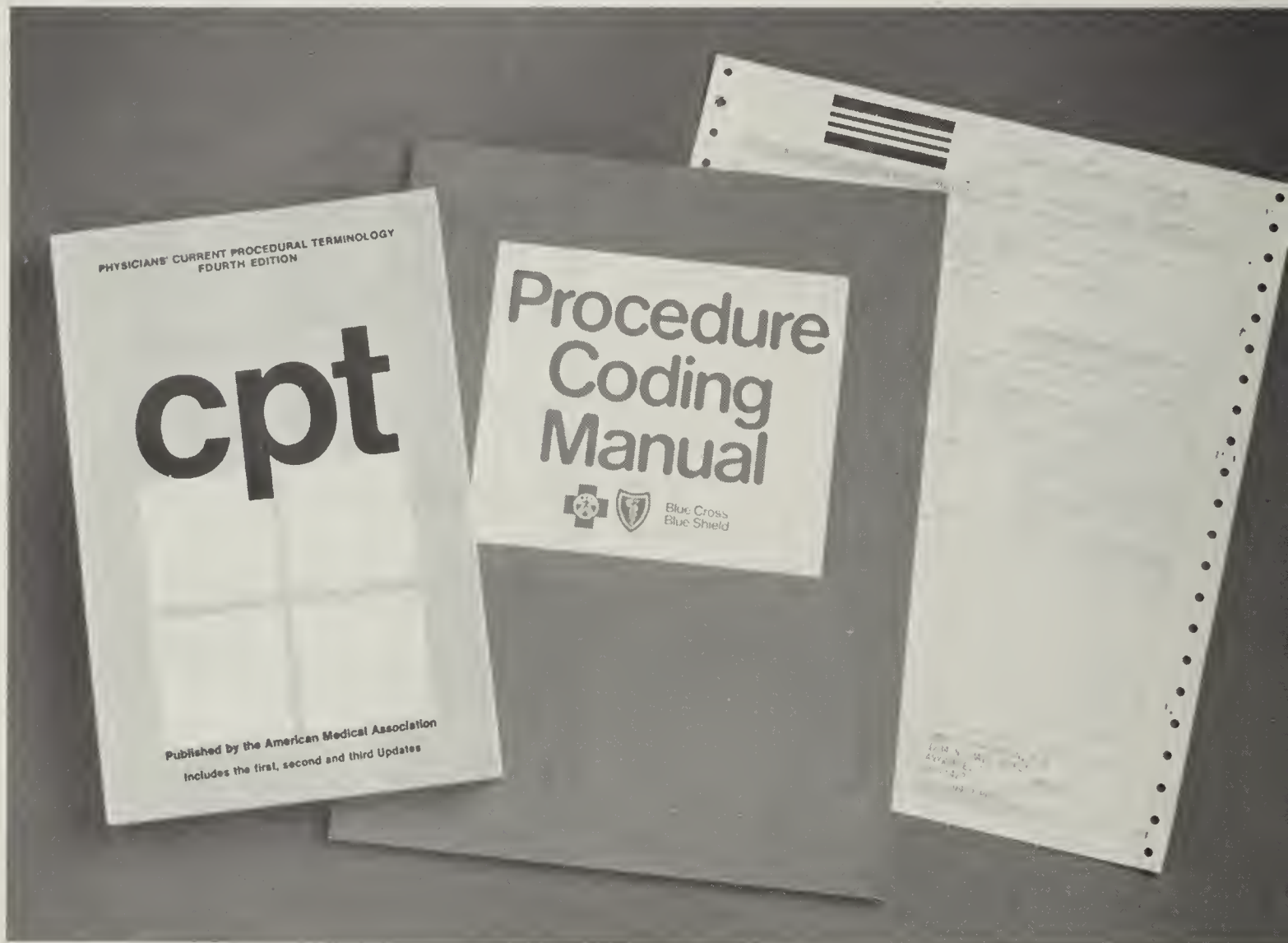
**NATIONAL MEDICAL  
ENTERPRISES, INC.**



"The Total Health Care Company."

An Equal Opportunity Employer M/F

# Your cash flow can depend on "paper flow." Here are 3 ways to improve it!



We process thousands of claims every day, and that requires a computer. But it can be easily confused without precise coding. When it "kicks out" an improperly coded claim, someone has to solve the mystery and hand-process the claim. That causes delays.

When a claim is "clean" (one that is accurate, complete and for a covered service) our computer can turn a claim into a check in less than two weeks. The trick is to give it the right facts. If you do that, we can dramatically reduce claims turnaround time and get your checks out faster.

We'd like you to have a free copy of our procedure coding manual to help you in filing accurate claims for your patients. It's easy to use and referenced by specialty. We also accept the AMA-

approved CPT coding system if you prefer. (Copies of that manual may be purchased through the AMA office.) We'll also provide you with a supply of the AMA standard claim form, already imprinted with your name and identification number. For information on any of these claims filing aids, contact your Blue Cross & Blue Shield Professional Relations representative.

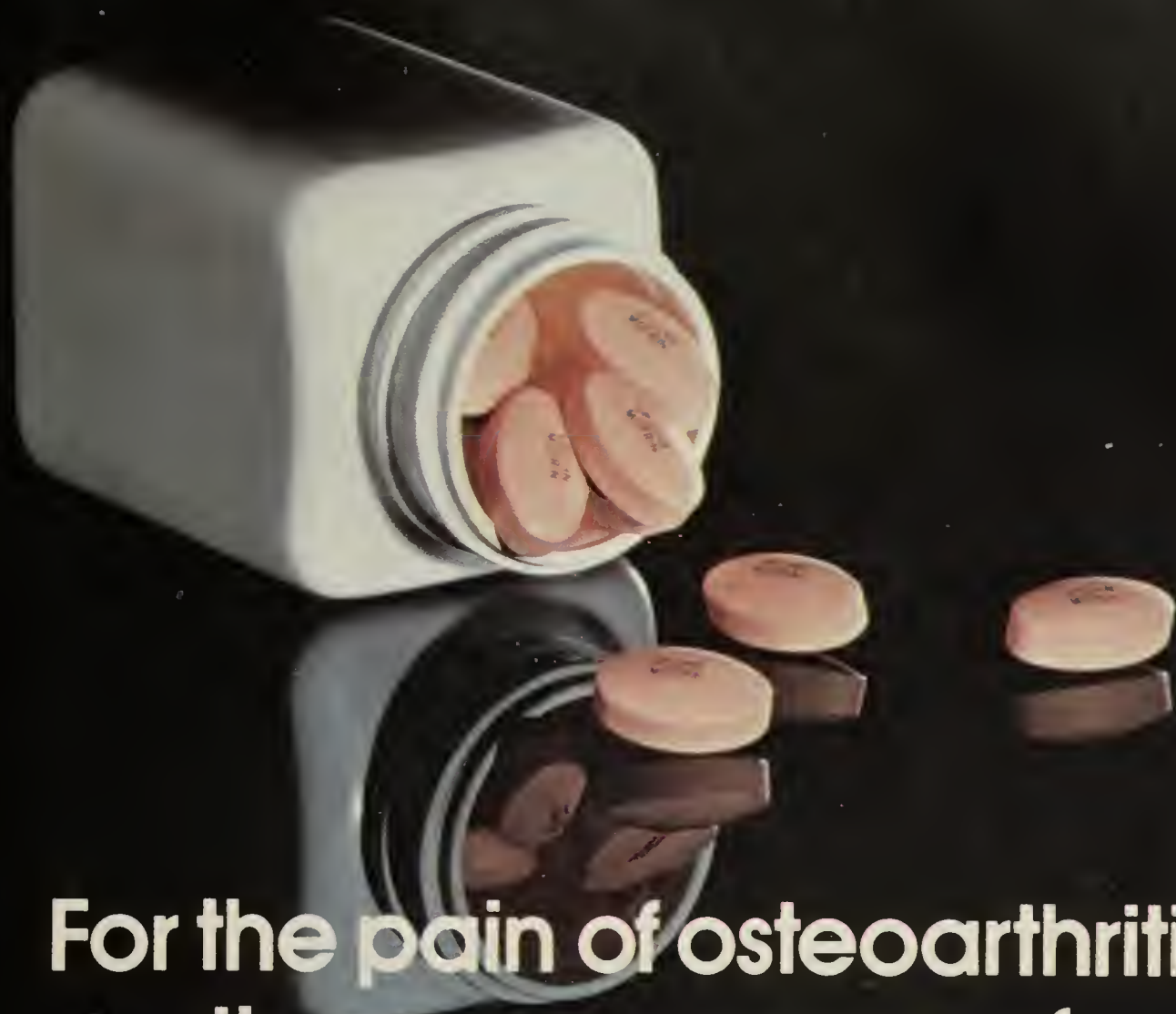


**Blue Cross  
Blue Shield**  
of Arizona

Phoenix: 321 W. Indian School / 248-8795 or 279-5341 • Tucson: 2545 E. Adams / 795-8029 • Flagstaff: 2304 N. 4th Street / 526-0232

® Registered Mark Blue Cross Association ® Registered Mark Blue Shield Association





For the pain of osteoarthritis  
the proven power of

**Motrin<sup>®</sup>**  
ibuprofen, Upjohn  
**600 mg Tablets**  
One tablet t.i.d.

Please see the following page for a brief summary of prescribing information.

**Upjohn**

## Motrin® Tablets (ibuprofen, Upjohn)

**Contraindications:** Individuals hypersensitive to it, or with the syndrome of nasal polyps, angioedema, and bronchospastic reactivity to aspirin, iodides, or other non-steroidal anti-inflammatory agents. Anaphylactoid reactions have occurred in such patients.

**Warnings:** Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Ulceration, perforation, and bleeding may end fatally. An association has not been established. *Motrin* should be given under close supervision to patients with a history of upper gastrointestinal tract disease, only after consulting ADVERSE REACTIONS.

In patients with active peptic ulcer and active rheumatoid arthritis, nonulcerogenic drugs, such as gold, should be tried. If *Motrin* must be given, the patient should be under close supervision for signs of ulcer perforation or gastrointestinal bleeding.

Chronic studies in rats and monkeys have shown mild renal toxicity characterized by papillary edema and necrosis. Renal papillary necrosis has rarely been shown in humans treated with *Motrin*.

**Precautions:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue *Motrin* and the patient should have an ophthalmologic examination, including central visual fields and color vision testing. **Fluid retention and edema** have been associated with *Motrin*; use with caution in patients with a history of cardiac decompensation or hypertension. *Motrin* is excreted mainly by the kidneys. In patients with renal impairment, reduced dosage may be necessary. Prospective studies of *Motrin* safety in patients with chronic renal failure have not been done. *Motrin* can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and those on anticoagulant therapy. Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain, or edema. To avoid exacerbation of disease or adrenal insufficiency, patients on prolonged corticosteroid therapy should have therapy tapered slowly when *Motrin* is added. The anti-pyretic, anti-inflammatory activity of *Motrin* may mask inflammation and fever.

**Drug interactions.** *Aspirin*: used concomitantly may decrease *Motrin* blood levels.

*Coumarin*: bleeding has been reported in patients taking *Motrin* and coumarin.

**Pregnancy and nursing mothers:** *Motrin* should not be taken during pregnancy nor by nursing mothers.

### Adverse Reactions

The most frequent type of adverse reaction occurring with *Motrin* is gastrointestinal, of which one or more occurred in 4% to 16% of the patients.

#### **Incidence Greater Than 1% (but less than 3%)—Probable Causal Relationship**

**Gastrointestinal:** Nausea,\* epigastric pain,\* heartburn,\* diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of GI tract (bloating and flatulence); **Central Nervous System:** Dizziness,\* headache, nervousness; **Dermatologic:** Rash\* (including maculopapular type), pruritus; **Special Senses:** Tinnitus; **Metabolic/Endocrine:** Decreased appetite; **Cardiovascular:** Edema, fluid retention (generally responds promptly to drug discontinuation; see PRECAUTIONS).

#### **Incidence Less Than 1%—Probable Causal Relationship\*\***

**Gastrointestinal:** Gastric or duodenal ulcer with bleeding and/or perforation, gastrointestinal hemorrhage, melena, gastritis, hepatitis, jaundice, abnormal liver function tests; **Central Nervous System:** Depression, insomnia, confusion, emotional lability, somnolence, aseptic meningitis with fever and coma; **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme, Stevens-Johnson syndrome, alopecia; **Special Senses:** Hearing loss, amblyopia (blurred and/or diminished vision, scotomata, and/or changes in color vision) (see PRECAUTIONS); **Hematologic:** Neutropenia, agranulocytosis, aplastic anemia, hemolytic anemia (sometimes Coombs' positive), thrombocytopenia with or without purpura, eosinophilia, decreases in hemoglobin and hematocrit; **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure, palpitations; **Allergic:** Syndrome of abdominal pain, fever, chills, nausea and vomiting, anaphylaxis, bronchospasm (see CONTRAINDICATIONS); **Renal:** Acute renal failure in patients with preexisting, significantly impaired renal function, decreased creatinine clearance, polyuria, azotemia, cystitis, hematuria; **Miscellaneous:** Dry eyes and mouth, gingival ulcer, rhinitis.

#### **Incidence Less Than 1%—Causal Relationship Unknown\*\***

**Gastrointestinal:** Pancreatitis; **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities, pseudotumor cerebri; **Dermatologic:** Toxic epidermal necrolysis, photoallergic skin reactions; **Special Senses:** Conjunctivitis, diplopia, optic neuritis; **Hematologic:** Bleeding episodes (e.g., epistaxis, menorrhagia); **Metabolic/Endocrine:** Gynecomastia, hypoglycemic reaction; **Cardiovascular:** Arrhythmia (sinus tachycardia, sinus bradycardia); **Allergic:** Serum sickness, lupus erythematosus syndrome, Henoch-Schönlein vasculitis; **Renal:** Renal papillary necrosis.

\*Reactions occurring in 3% to 9% of patients treated with *Motrin*. (Those reactions occurring in less than 3% of the patients are unmarked.)

\*\*Reactions are classified under "Probable Causal Relationship" (PCR) if there has been one positive rechallenge or if three or more cases occur which might be causally related. Reactions are classified under "Causal Relationship Unknown" if seven or more events have been reported but the criteria for PCR have not been met.

**Overdosage:** In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine, so alkaline diuresis may be beneficial.

**Dosage and Administration:** Do not exceed 2400 mg per day. If gastrointestinal complaints occur, administer with meals or milk.

Rheumatoid arthritis and osteoarthritis, including flares of chronic disease: Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d. Mild to moderate pain: 400 mg every 4 to 6 hours as necessary for relief of pain.

**Caution:** Federal law prohibits dispensing without prescription.

**Upjohn** THE UPJOHN COMPANY  
Kalamazoo, Michigan 49001 USA

MED-B-5-S



A Public Service of This Magazine  
& The Advertising Council

FOREST FIRE PREVENTION CAMPAIGN  
MAGAZINE AD NO. FFP-1197-81  
2 1/4" x 10" [110 Screen] CP-2-81/CM-3-81







## We've got the prescription for your communications needs.

Mountain Bell has trained a team of specialists in the medical profession. Because doctors and medical professionals have unique communications needs. And their own set of problems.

Our medical specialists understand those problems. They study your daily patient load, staff requirements, and information management areas. They help implement mechanization through time-sharing of computer terminals. And design voice and data communications systems tailored to fit a private practice, or the collective needs of clinics and group practices.

One of the systems we've developed for you is the Horizon® communications system. In addition to the advanced calling features available on larger, more costly PBX equipment, the Horizon system gives you Dial Dictation and Loudspeaker Paging access. Plus Intercom and Speakerphone capabilities. So you minimize time spent by support personnel on placing and receiving phone calls. While speeding exchange of information.

The Horizon communications system is just one example of how our team members can meet the communications needs of your practice. But they can tell you more. Because they've taken the time to learn the medical profession. And they're backed by all the resources of the Bell System.

Let the Mountain Bell specialists in the medical profession give you the remedy to your communications needs.

Call toll-free 1-800-525-2323 (in Colorado, call 1-800-332-2351). Mountain Bell.

\* Registered Trademark of AT&T Company

**The knowledge business**



# COMPUTED TOMOGRAPHY OF THE HEAD



## **CNS** Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207•  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully  
bound books. Choose from 30 different  
colors of durable Library Buckram

**\$14.00 per volume, (name imprint.75)**

**\$15.50 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

**Free local pickup and delivery on 10 volumes  
or more**

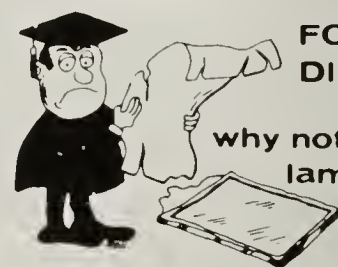
Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338

## YOU WORKED HARD

FOR THAT  
DIPLOMA



why not have it  
laminated?

it will last a lifetime....

## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally

ARIZONA LAMINATING SERVICE, INC.

7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338



# Local families find young adult treatment program helps solve serious problems.

The period from approximately 18 to 25 years of age can be the most difficult of a lifetime.

It is a time of change, decision-making and responsibility-taking. Young adults are pulled in every direction, and many are not prepared for the sudden transition from childhood to adulthood.

Confusion, anxiety, a sense of failure and depression are overwhelming experiences for the young adult, and the use of drugs and alcohol only make things worse. As a result, the young adult is often immobilized by uncertainty.

At Scottsdale Camelback Hospital, our Young Adult Treatment Program works closely with such young people to stabilize their emotions and alleviate symptoms. The program lays a foundation for growth and development. Values are clarified. Career goals are examined.

The program has been instrumental in solving serious problems for a number of families faced with the need to assist a young adult during this trying period. If such a problem is occurring in your family, you are urged to consult your physician about our program, or to call Scottsdale Camelback Hospital for further details.

Camelback Hospitals are among the leading psychiatric centers of the Southwest. An open medical staff of more than 60 psychiatrists, as well as psychologists, psychiatric nurses, social workers and activity therapists provide 24-hour care. Camelback Hospitals and Camelback Mental Health Center are fully accredited and licensed by the State of Arizona.

There are specialized programs for adolescents (13-17 years of age) at our Phoenix Camelback Hospital.

For further information, consult your physician or call us today.



**SCOTTSDALE CAMELBACK HOSPITAL**  
7575 E. Earll Drive Scottsdale, AZ 85251 Phone: 941-1108

*Doctor —  
This newspaper ad  
has been scheduled  
in leading Valley  
newspapers.*

*Daniel W. Capps,  
President Camelback  
Hospitals*

# HLA-B27 Related Arthropathies in Hopi and Navajo Indians

Harold G. Morse, M.D.  
Robert G. Rate, M.D.  
Mark D. Bonnell, M.D.  
Timothy T. Kuberski, M.D.

## Introduction

The discovery of a striking association between certain rheumatic disorders and the histocompatibility antigen HLA-B27<sup>1-3</sup> has dramatically improved our potential to understand the pathogenesis and etiology of these conditions. It has been our subjective impression at the Keams Canyon Indian Hospital (KCIH) that we were treating an extraordinary number of patients, predominantly Navajo, with diseases linked in other populations to the HLA-B27 antigen. In order to study this problem in greater depth, the KCIH HLA/sacroiliitis study was undertaken. This paper summarizes the findings of that study.

## Background

Keams Canyon Indian Hospital, located on the Hopi Indian Reservation in northeastern Arizona (Figure 1) serves a population of about 13,000 Native Americans from two ethnically distinct Indian tribes. Roughly half the patients are Hopi and half Navajo. The area is part of the high desert plateau of northern Arizona, the altitude ranging from 6,000 to 7,000 feet. Its climate is arid and the annual rainfall is approximately ten inches.

From: Public Health Service Indian Hospital, Keams Canyon, Arizona 86034, (Drs. Morse, Rate and Bonnell). And, from the National Institute of Arthritis, Metabolism, and Digestive Diseases, Epidemiology and Field Studies Branch, 1440 East Indian School Road, Phoenix, Arizona 85014, (Dr. Kuberski). Reprint requests to Dr. Kuberski. Presented at the Arizona Regional Meeting of the American College of Physicians, November 14-15, 1980, Arizona Biltmore, Phoenix, Arizona

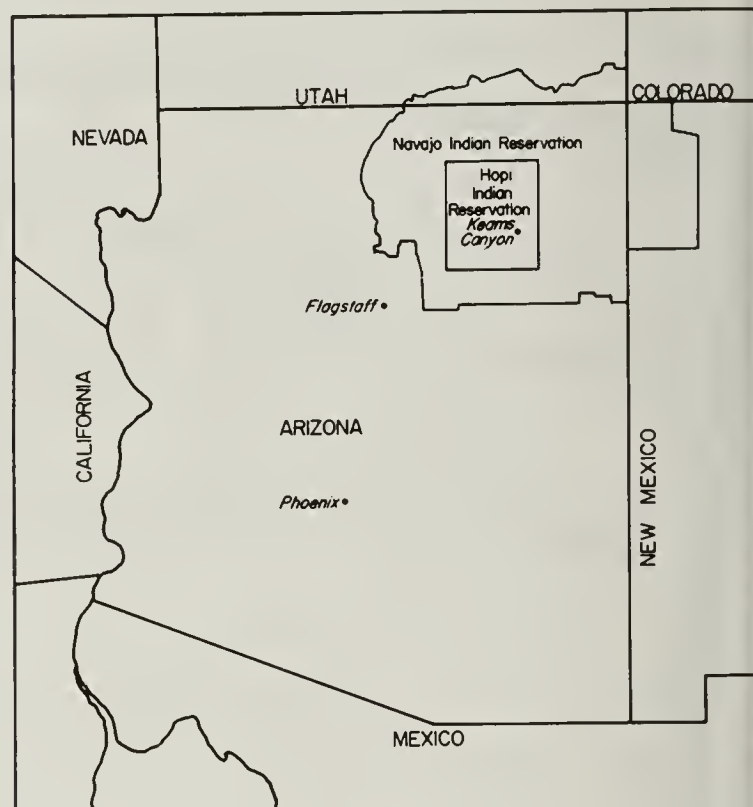


Figure 1  
Map showing the location of Keams Canyon, the Hopi and Navajo Reservations in northeast Arizona.<sup>10</sup>

The Hopi, a pueblo tribe, have inhabited three mesas in the area for centuries. About 7,000 reservation Hopi live in eleven villages. The more traditional pueblo dwellings have neither electricity nor running water. A significant proportion of the population, however, now lives in more modern homes below the mesas where plumbing and utilities are available. The distant roots of the Hopi are unknown, but many believe they originated from Central America.

The Navajo, in contrast to the Hopi, are an Athabascan tribe. Traditionally, they are more nomadic, living in isolated family camps, often in earthen dwellings called hogans. The majority of Navajo homes have neither electricity nor running water. The Navajo population served by the KCIH numbers about 6,000 and they represent some of the most traditional Navajo on their reservation. The Athabascan tribes (of Na-Dené stock) are believed to have crossed the Bering Strait from Asia some 3000 years ago.<sup>4</sup> The Navajo migrated to their current location in the southwestern United States about 500 years ago and are felt to be distant relatives of the Haida Indians of British Columbia (Figure 2).

## HLA-B27 Frequency and Disease Associations

Early characterization of the major histocompatibility complex was largely a product of transplantation research in the 1960s. It was not until the 1970s that specific HLA antigens were found to be associated with disease. In 1973, simultaneous reports from Los Angeles and London noted the extraordinarily high correlation between ankylosing spondylitis and the histocompatibility antigen HLA-B27.<sup>1,2</sup> In 1974, a similar



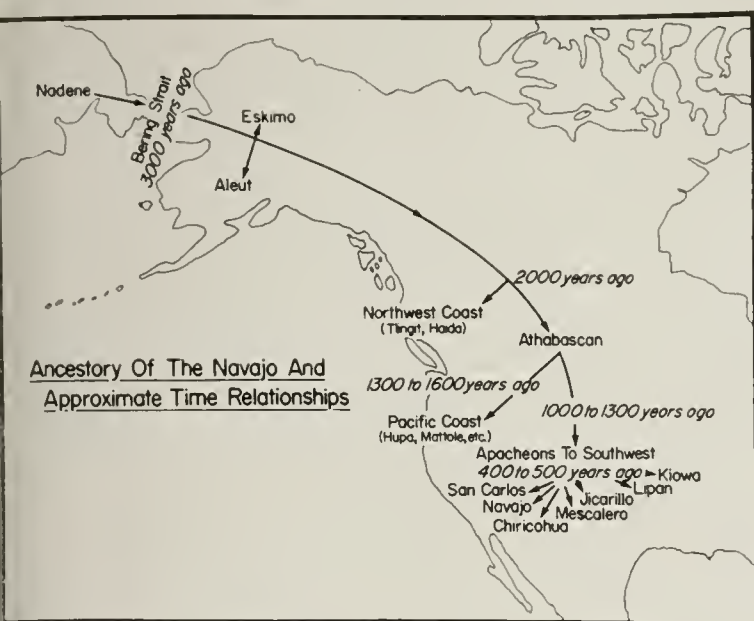


Figure 2

Migration of the Navajo ancestors and approximate time relationships.<sup>10</sup>

Correlation was reported for Reiter's syndrome.<sup>3</sup> There is considerable variation in the prevalence of Reiter's syndrome and ankylosing spondylitis in various populations, but it roughly correlates with the phenotype frequency of HLA-B27 in the respective populations.<sup>5</sup> A population of particular interest is the Haida; 50% of individuals belonging to this tribe are positive for HLA-B27, and about 14% of men over the age of 25 years have radiographic evidence of sacroiliitis.<sup>6,7</sup> As previously noted, the Haida are thought to be distant relatives of the Navajo. The Hopi, in contrast, are ancestrally different from the Navajo being more closely related to the Pima who have an 18% phenotype frequency of HLA-B27.<sup>8</sup>

#### HLA-B27 and Radiologic Sacroiliitis in the Hopi and Navajo

The KCIH HLA/sacroiliitis study was divided into several parts. The objective of Part I was to survey the general Hopi and Navajo populations for HLA antigens. HLA typing was done on an outpatient population of 100 Hopi (50 men, 50 women) and 100 Navajo (50 men, 50 women).<sup>9</sup> The objective of Part II was to determine the frequency of radiographic sacroiliitis (SI) in each of the two tribes. The subjects were selected randomly on the basis of willingness to participate following informed consent. The results for HLA-B27 are given in Table I. The phenotype frequency of HLA-B27 was found to be 9% in the Hopi and 36% in the Navajo. We are unable to explain a difference in HLA-B27 frequency between Navajo men and women (23/50 vs 13/50). However, our selection process may have been biased for HLA-B27 positive Navajo men who were more frequent attendants at our outpatient department. We suspect, therefore, that the true phenotype frequency of HLA-B27 in the Navajo may be less than 36%. The study demonstrated, however, that the HLA-B27 frequency is considerably higher in the Navajo than in the Hopi. A standard anteroposterior x-ray of the sacroiliac

Table 1  
Frequency of HLA-B27 in the Navajo and Hopi Tribes

| HLA-B27 Frequency |              |        |       |
|-------------------|--------------|--------|-------|
| A. Hopi           | Hopi Men     | 3/50   | ( 6%) |
|                   | Hopi Women   | 6/50   | (12%) |
|                   | Hopi Tribe   | 9/100  | ( 9%) |
| B. Navajo         | Navajo Men   | 23/50  | (46%) |
|                   | Navajo Women | 13/50  | (26%) |
|                   | Navajo Tribe | 36/100 | (36%) |

Table 2  
Frequency of Radiological Sacroiliitis in the Navajo and Hopi Tribes

| Frequency of Radiological Sacroiliitis |              |        |       |
|----------------------------------------|--------------|--------|-------|
| A. Hopi                                | Hopi Men     | 5/65   | ( 8%) |
|                                        | Hopi Women   | 0/62   | ( 0%) |
|                                        | Hopi Tribe   | 5/127  | ( 4%) |
| B. Navajo                              | Navajo Men   | 18/120 | (15%) |
|                                        | Navajo Women | 5/88   | ( 6%) |
|                                        | Navajo Tribe | 23/208 | (11%) |

joints was obtained on the participants who were HLA-typed in Part I of the study.<sup>10</sup> Additional patients, not HLA-typed, were selected at random to have a pelvic x-ray following informed consent. Women under fifty and men under age eighteen years were excluded. All pelvic films were evaluated independently for SI by three readers without information on the subjects. The radiographs were graded according to the New York criteria: grade 0-normal, grade I-suspicious for SI; grade II-minimal SI; grade III-moderate SI; grade IV-ankylosis.<sup>11</sup> When observers disagreed, a review resulted in a consensus grading. Table 2 summarizes the SI results. Grade II or greater SI was found in 8% (5/65) of the Hopi men, none (0/62) of the Hopi women, 15% (18/120) of the Navajo men, and 6% (5/88) of the Navajo women. The women of both tribes had considerably less SI than the men. The predominance of SI in men has been a consistent observation in most population surveys. Of the two Hopi with SI who were HLA typed, one (50%) was HLA-B27 positive; eleven of the 16 (69%) Navajo with SI were HLA-B27 positive.

#### Reiter's Syndrome in the Hopi and Navajo

An extraordinarily high incidence of Reiter's syndrome has been observed in the Navajo population served by KCIH.<sup>9</sup> Eighteen new cases diagnosed in an eighteen month period gave an incidence rate of 133 per 100,000 per year and a minimum prevalence of 300 cases per 100,000 population. In our Reiter's patients, 88% (14/16) were HLA-B27 positive and 53% (9/17) had radiographic evidence of SI at the time of diagnosis. Many of our patients were also noted to have antecedent diarrhea. At least 39% had diarrhea before they developed Reiter's syndrome. The association between

Reiter's syndrome and various infectious diseases, particularly infections with *Shigella*, has been well documented.<sup>12,13</sup> Shigellosis and other enteric diseases are endemic in this region and a major source of infection-related morbidity in the populations. *Shigella flexneri* is by far the most common enteric bacterial pathogen isolated at KCIH (unpublished data), a finding similar to that reported elsewhere from this area.<sup>14</sup> We hypothesize that the high prevalence of Reiter's syndrome in the Navajo may be explained by the high frequency of HLA-B27 in this tribe in combination with the frequent exposure to enteric pathogens such as *Shigella flexneri*.

Another feature of Reiter's syndrome in Navajo patients is the tendency to have signs and symptoms in a temporally disjointed fashion spanning many years. In our series, complete Reiter's syndrome (inflammatory arthritis with both urethritis and conjunctivitis) was found in 72% (13/18), and incomplete Reiter's (inflammatory arthritis with either urethritis or conjunctivitis) in 28% (5/18). Careful chart review of several complete Reiter's syndrome patients revealed frequent clinic visits for isolated bouts of arthritis, conjunctivitis or non-gonococcal urethritis, long before the triad occurred simultaneously and the diagnosis was made. Also, chart review of some of our older patients with Grade IV SI and ankylosing spondylitis disclosed frequent visits over the years for recurrent urethritis, evanescent peripheral arthritis and conjunctivitis. The apparent overlap of clinical disease between Reiter's syndrome and spondylitis patients has been noted for some time. A twenty-year follow-up of 100 patients with Reiter's syndrome developing during the Finnish epidemic of bacillary dysentery during World War II, 32% of these patients were found to have symptoms and radiographic changes consistent with "rheumatoid spondylitis."<sup>13</sup> The literature and our clinical observations lead us to believe that the distinction between Reiter's syndrome and ankylosing spondylitis is sometimes impossible, this seemed particularly true in our Navajo patients where classical findings only represented extremes in a continuum or spectrum of disease related to HLA-B27.

In contrast to the Navajo, Reiter's syndrome appeared to be uncommon among the Hopi. During the same eighteen month period when eighteen cases were found among the Navajo, there were no cases of Reiter's syndrome in full-blooded Hopi. The Hopi and Navajo populations served by KCIH are approximately the same size, and the frequency of *Shigella* isolations from individuals of these two tribes is also similar (unpublished data). Therefore, if Reiter's syndrome among the Hopi was to have the same relationship to HLA-B27 as for the Navajo, four or five cases of Reiter's syndrome might have been expected to occur in the Hopi during the eighteen month study period. Since no cases were observed, a difference in exposure to an environmental precipitant or the possibility of a

protective genetic mechanism are suggested.<sup>9</sup> We are in the process of doing family studies on the Reiter's syndrome patients, examining HLA and other chromosomal markers to elucidate the pattern of disease inheritance.

### The Navajo Arthritis Syndrome

An acute, self-limited, asymmetric polyarthritis of unknown etiology found in Navajo Indians has been described as a distinct entity.<sup>15</sup> This initial description "Navajo arthritis" was published before reports appeared in the literature associating HLA-B27 with the seronegative arthropathies. We compared our experience with arthritis at KCIH to those in the reports describing "Navajo arthritis."<sup>16</sup> We concluded that the arthritis labeled "Navajo arthritis" did exist in the Navajo, but was probably related to the high frequency of HLA-B27 in this population. Navajo arthritis therefore, is probably a reactive arthritis (or a variant ankylosing spondylitis or Reiter's syndrome) associated with the high frequency of enteric bacterial infection and HLA-B27 in this population.

### Spectrum of HLA-B27 Related Disease at KCIH

In summary, the KCIH HLA/sacroiliitis study found a high frequency of HLA-B27 and related arthropathy among Navajo Indians, but comparatively little in the Hopi. Both of these tribes share a comparable environment. We observed a wide range of HLA-B27 related arthritis in persons possessing this antigen. Ankylosing spondylitis was diagnosed late in the course of disease in several men who, in fact, had manifestations of complete Reiter's syndrome in earlier years. We also have observed a family in whom HLA-B27 and arthritis have been documented over four generations. The grandfather had advanced ankylosing spondylitis, the son had grade III SI, a granddaughter had HLA-B27 positive reactive arthritis and a great granddaughter had developed complete Reiter's syndrome following *Shigella flexneri* infection.<sup>17</sup>

The marker gene for HLA-B27, or perhaps some other closely associated gene, appears to predispose to a wide range of joint disease which develops after exposure to environmental stimuli. Enteric infections appear to be the frequent environmental stimulus, gastroenteritis due to gram-negative bacteria being the most common. Whether an HLA-B27 positive person develops arthritis following a given infection, and the form of arthritis developed, seems to be dependent on other genetic factors yet to be elucidated. The reason we postulate that other genetic factors may be involved is because a few of our patients had classical ankylosing spondylitis and Reiter's syndrome, but were not HLA-B27 positive. Only further immunologic and genetic research can provide a clearer understanding of the pathogenic mechanisms of HLA-B27 related disease in these Native American populations. Such studies are desirable because the ultimate identification of the offending organisms could provide the basis for prevention of these disabling diseases.



## References

- Schlosstein L, Terasaki PI, Bluestone R, Pearson CM: High association of an HLA antigen, W27, with ankylosing spondylitis. *N Engl J Med* 288:704-706, 1973.
- Brewerton DA, Hart FD, Nicholls A, Caffrey M, James DCO, Sturrock RD: Ankylosing spondylitis and HL-A B27. *Lancet* I:904-907, 1973.
- Morris R, Metzger AL, Bluestone R, Terasaki PI: HL-A W27 - a clue to the diagnosis and pathogenesis of Reiter's Syndrome. *N Engl J Med* 290:554-556, 1974.
- Vogt EZ: Navaho. In: *Perspectives in American Indian Culture Change*. Spicer EH (ed), University of Chicago Press, 1961. pp. 278-336.
- Woodrow JC: Histocompatibility antigens and rheumatic diseases. *Semin Arth Rheum* 6:257-276, 1977.
- Gofton JP, Bennett PH, Smythe HA, Decker JL: Sacroiliitis and ankylosing spondylitis in North American Indians. *Ann Rheum Dis* 31:474-481, 1972.
- Gofton JP, Chalmers A, Price GE, Reeve CE: HL-A 27 and ankylosing spondylitis in B.C. Indians. *J Rheumatol* 2:314-318, 1975.
- Calin A, Bennett PH, Jupiter J, Terasaki PI: HLA-B27 and sacroiliitis in Pima Indians - association in males only. *J Rheumatol* (Suppl 3) 4:44-48, 1977.
- Morse HG, Rate RG, Bonnell MD, Kuberski T: High frequency of HLA-B27 and Reiter's syndrome in Navajo Indians. *J Rheumatol* 7:900-902, 1980.
- Kuberski TT, Morse HG, Rate RG, Bonnell MD, Wood Jr JG, Bennett PH: A hospital-based survey of radiological sacroiliitis and HLA antigens B27 and C2 in Navajo and Hopi Indians. *Human Immunol*, 1981 (in press).
- Bennett PH, Burch TA: New York Symposium on population studies in rheumatic diseases: New diagnostic criteria *Bull Rheum Dis* 17:453-458, 1967.
- Noer HR: An "experimental" epidemic of Reiter's syndrome. *JAMA* 197:693-698, 1966.
- Sairanen E, Paronen I, Mahonen H: Reiter's syndrome: A follow-up study. *Acta Med Scand* 185:57-63, 1969.
- Murphy J, Chmell S, Starko K: Shigellosis - Chinle, Arizona. *Morb Mort Week Rep* 28:535, 1979.
- Muggia AL, Bennahum DA, Williams RC Jr: Navajo arthritis - an unusual, acute, self-limited disease. *Arthritis Rheum* 14:348-355, 1971.
- Rate RG, Morse HG, Bonnell MD, Kuberski TT: "Navajo Arthritis" reconsidered. Relationship to HLA-B27. *Arthritis Rheum* 23:1299-1302, 1980.
- Morse HG, Rate RG, Bonnell MD, Kuberski TT: Reiter's syndrome in a five-year-old girl. *Arthritis Rheum* 23:960-961, 1980.
- Ebringer R: Spondylarthritis and the post-infectious syndromes. *Rheumatol Rehab* 18:218-226, 1979.



Cardiology

## The MB Creatine Kinase Isoenzyme

Arthur Pelberg, M.D.

Editor:

Kenneth B. Desser, M.D.

### General Information on the CK Isoenzymes

Creatine Phosphokinase (CPK) or creatine kinase (CK) is the enzyme that catalyzes the reaction of creatine + ATP → phospho creatine + ADP. The CK enzyme is found mainly in skeletal muscle, myocardium, and brain with small amounts detected in other tissues.<sup>3</sup> CK can be separated into isoenzymes (different molecular forms of an enzyme that catalyze the same chemical reaction) by electrophoresis, column chromatography, and radio immunoassay.<sup>2</sup> The isoenzymes can enhance the diagnostic use of CK by allowing a more accurate determination of what tissue is releasing CK.

The CK isoenzymes are separated into three fractions (by the above mentioned methods): CK<sub>1</sub> or BB, CK<sub>2</sub> or MB, and CK<sub>3</sub> or MM. (The B standing for brain and the M for muscle). The isoenzymes are found in normal tissue cytosol and in the myofibrillar apparatus of the cell.<sup>1</sup>

Embryologically all CK is initially the BB isoenzyme. As the organ systems differentiate the various CK isoenzymes evolve.<sup>1</sup> In skeletal muscle CK is BB then it differentiates into MB and then into the MM isoenzyme. In the myocardium the isoenzymes evolve from the BB to the MB and the MM fractions. In the brain the isoenzyme remains the BB fraction.

From: The Department of Medicine, Good Samaritan Hospital, 1033 East McDowell Road, Phoenix, Arizona 85006

Controversy exists as to what tissues contain which CK isoenzymes. The following is a list compiled from the literature. The myocardium is mostly MM with 15%-20% MB.<sup>3</sup> The skeletal muscle is mostly MM with 3%-4% MB,<sup>3</sup> and the brain is 90%BB with 10% MM.<sup>2</sup> The lung, kidney, spleen, prostate, and small intestine have the BB fraction present with some reports of trace MB being found.<sup>3</sup> Trace MB fractions have been reported in the pancreas, tongue, diaphragm, aorta, and bladder.<sup>1</sup> The thyroid and adrenals may contain some BB fraction.<sup>1</sup>

The half life of the MM isoenzyme in the serum is ten to twelve hours and for the MB fraction it is six to eight hours.<sup>3</sup> This becomes important in the clinical application of the CK isoenzymes. Proper collection of the isoenzymes is clinically important because MB and BB fractions are unstable at room temperature without the addition of reducing agents in the collection media. The MB and BB isoenzymes are stable for 24 hours with refrigeration.<sup>3</sup> Results of the CK isoenzymes depend on the method of assay and standard values may differ in various laboratories.

### Clinical Use of the CK Isoenzymes

#### Myocardial Infarction (M.I.)

The MB fraction of CK has been called the most specific and sensitive indicator of myocardial necrosis available for general use at the present time.<sup>3</sup> The MB fraction usually appears in the serum within four to eight hours after the onset of chest pain. Peak levels of MB are usually detected 24 hours later and the MB fraction is usually negative or within normal limits at 72 hours.<sup>2</sup> An MB fraction greater than 3%-5% of the total CK is considered a positive result and representative of myocardial necrosis. A recent review of CK isoenzymes noted that the total CK did not have to be elevated (total CK can be within the normal limits of the laboratory) to make the diagnosis of myocardial infarction if the MB fractions were elevated (greater than 3%-5%).<sup>11</sup> It is believed that the rise and fall of the total CK and the MB fraction may not correlate exactly. This latter phenomenon could result in a raised MB fraction and a normal total CK.<sup>11</sup>

After a myocardial infarction the MB fraction of CK should never exceed 40% of the total CK.<sup>2</sup> If this occurs myocardial infarction may be present but massive skeletal muscle necrosis should be considered. The MB fraction overestimates the extent of necrosis and especially if more than 16% of the weight of the heart is infarcted. The MB fraction will, however, detect acute myocardial necrosis if less than 1% of the muscle mass is involved. It is therefore clear that small areas of necrosis will raise the MB fraction.

When samples are drawn at proper intervals an MB fraction greater than 3%-5% of the total CK is claimed to be 100% sensitive and 90% specific for the diagnosis of an acute myocardial infarction.<sup>4</sup>

An increase in the MB fraction of CK without an acute myocardial infarction (false positive) has been reported

in association with cardioversion, tachyarrhythmia, cardiopulmonary resuscitation, cardiac catheterization, trauma, dermatomyositis, viral myositis, muscular dystrophy, myoglobinuria, "coronary insufficiency," unstable angina pectoris, congestive heart failure, pulmonary embolus, malignant hyperthermia, hypothyroidism, carbon monoxide poisoning, febrile cardiomyopathy, cation imbalance, drug intoxication, and renal failure.<sup>1,8</sup> Many of the aforementioned conditions may result in myocardial destruction and an investigative work is currently underway in order to determine their significance.

#### Myocardial Infarction with Extension

Extension or reinfarction of the myocardium was suggested in 24% of patients with acute myocardial infarction. This figure was determined by detection of a second rise in the MB after the initial fraction returned to normal. The second rise usually occurred 30 hours after the initial chest pain. The incidence of extension was the same for anterior, inferior, and so-called subendocardial infarctions.<sup>9</sup>

#### Myocardial Ischemia

Transient hypoxia secondary to myocardial ischemia may alter the cell membrane permeability and permit leakage of the MB fraction.<sup>9</sup> Patients with angina pectoris had elevated MB fractions for four to six hours and these fell to normal limits within fourteen hours. In one study 42% of patients with unstable angina had an elevated MB fraction with a total CK value which was normal.<sup>9</sup> There was a direct correlation between the severity of the angina and the rise in the MB fraction along with the degree of ST depression on the electrocardiogram.<sup>9</sup> The rise in the MB fraction with a normal total may be secondary to the rapid rise of the MB fraction in acute ischemia or injury.<sup>10</sup>

#### Pericarditis

Several conflicting reports have appeared in the literature regarding CK and pericarditis. The majority of studies indicate that the MB fraction is usually within normal limits but a few report a small rise which may be due to subepicardial injury.<sup>8</sup>

#### Cardioversion

Electrical cardioversion for acute atrial arrhythmias may raise the MB fraction.<sup>7</sup> On the other hand the total CK may be elevated after D.C. shock with no rise in the MB.<sup>6</sup> There may be a relation between the cardioversion energy settings and these total or MB CK elevations.

#### Surgery

Non cardiac surgery, including thoracic surgery, does not elevate the CK MB.<sup>3</sup> Following cardiac surgery including coronary artery bypass, valve replacement and repair of congenital defects the MB fraction may rise. This rise returns to normal within 18 hours after surgery in 74% of patients.<sup>1</sup> When an infarct occurred during or after cardiac surgery the MB fraction remained elevated for a mean of 29 hours after the operation.<sup>5</sup> In the same study 22.5% of patients undergoing cardiac surgery did not have an elevated MB



action. A possible way of differentiating an elevated MB fraction secondary to cardiac surgery from a new infarct would be to collect the CK isoenzymes the evening of the day before surgery, the morning and the evening of the first post operative day, and the morning of the second post operative day.<sup>5</sup> If the MB fraction is still elevated at the last collection an acute myocardial infarction should be considered.

### **Treadmill Testing**

The MB fraction is normal if the patient does not show anemia on the treadmill test.<sup>3</sup> If the treadmill test shows signs of ischemia the MB fraction may be elevated.

### **Muscle Disease**

Muscular dystrophy results in a large serum component of the MB fraction of CK. This elevation is thought to be secondary to a defect in maturation of skeletal muscle CK going from BB to MB to MM.<sup>5</sup> Major skeletal muscle trauma or necrosis can raise the MB fraction as well as the total CK.

### **Time of Collection of CK Isoenzymes for Determining Acute Myocardial Infarction**

A single enzyme collection is not adequate for diagnosing a new myocardial infarction. The suggested regimen for the collection of the CK isoenzymes is twelve to twenty-four hours after the initial chest pain.<sup>11</sup> This method appears to be more cost effective and just as accurate as the older recommendations which included collection of the CK isoenzymes at the time of presentation to the hospital and once every eight hours or twenty-four hours after the patient was admitted.<sup>4</sup> It should be recognized that when the clinical history for the onset of chest pain is vague the isoenzyme collection may not be taking place at the optimal time and an elevated MB fraction may be missed. However, the patient will usually have an elevated MB fraction (greater than 3%-5% of the total CK) and the diagnosis of an acute myocardial infarction can be made with 90%-100% specificity. Both transmural and subendocardial infarctions raise the MB fraction of CK.

### **Summary**

- 1) The MB fraction of CK is considered elevated if it is greater than 3%-5% of the total CK value (check with your laboratory for absolute values).
- 2) The total CK does not have to be above normal limits to make the diagnosis of a myocardial infarction if the MB fraction is elevated.
- 3) Collection of CK isoenzymes should take place twelve and twenty-four hours after the initial chest pain.
- 4) Transmural and subendocardial infarcts raise the MB fraction greater than 3%-5% of the total CK.
- 5) An elevated MB fraction may be missed if the patient's chest pain was greater than 36 hours before requiring the serum specimens.
- 6) Clinical acumen and other criteria should still be used in making the diagnosis of a myocardial infarction though an elevated MB fraction is 90%-100% specific.

## **Editorial Comment**

Kenneth B. Desser, M.D.

"Cardiac Enzymes x3 days" is one order which has unfortunately survived good science throughout the decades. This biochemical ritual arose as a consequence of the sequential serum aspartate aminotransferase (SGOT) which frequently did not rise until the third day following an acute myocardial infarction. Given the current state of art there is no rationale for ordering any further serum enzymes as soon as an elevated CPK-MB level has been detected in an uncomplicated case. Dr. Pelberg's article provides the clinician with some guidelines for the utility of such enzymatic determination. A few developments worthy of attention are: 1) recent demonstration that measurement of the cardiac specific light chain for myoglobin may be the most sensitive marker for myocardial infarction, 2) the terms "subendocardial" and "transmural" infarct are often misnomers since either can result in electrocardiographic ST segment or T wave changes alone, or Q waves. Perhaps a return to the appellations "Q wave" infarct and "T wave" infarct, reminiscent of antediluvian nomenclature, would be in order, 3) the practice of deciding whether a patient with chest pain should be admitted to hospital based on findings of a single electrocardiogram or "stat CK" is to be abhorred. Both can obviously be normal during the incipient stages of acute myocardial infarction. Some investigators claim that an initially normal electrocardiogram may indicate that the patient will fare better should he subsequently develop diagnostic changes. On the other hand, some evidence has been provided which suggests that those patients with enzymatic evidence of infarction who do not develop Q waves actually have a worse prognosis.

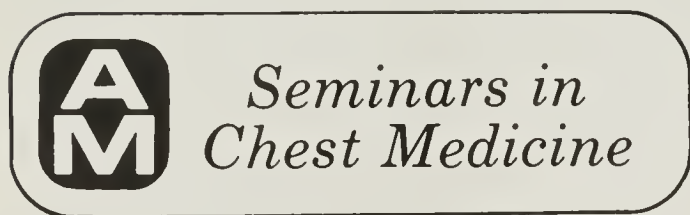
Fortunately, most physicians are aware that there must be "overdiagnosis" and "overadmission" of infarct suspects in order to prevent sudden death in those patients with initially normal electrocardiograms. If all your putative infarct patients always turn out to have the diagnosis you may be sending a few home to die.

*Supported by the Biomedical Research Memorial Fund, Inc.*

### **References**

1. Bauman D: Creatin phosphokinase isoenzymes and the diagnosis of myocardial infarction. *Post Graduate Medicine* 67:103-116, 1980.
2. De souza J, Sine H, et al: The significance of the MB isoenzyme in patients with acute cardiovascular disease with a normal or borderline total CPK activity. *Clin Biochem* 11:204-209, 1978.
3. Grohlich J, Brossevk A, et al: Study of the value of CPK and LDH isoenzyme determinations in the differential diagnosis of ischemic chest pain. *Clin Biochem* 11:232-234, 1978.
4. Henry JB (ed): *Clinical Diagnosis and Management by laboratory methods*. 16th edition, W.B. Saunders Co, pp 365-379, 1979.
5. Lindsey D, Navin T, Finley P: Meaning of Elevated CK-MB. *Amer Heart J* 98:405-406, 1979.
6. Marmor A, Keidors S, et al: The MB isoenzymes of creatine kinase as an indicator of severity of myocardial ischemia. *Lancet* 182-184, Oct. 14, 1978.
7. Marmor A, Keidor S, et al: MB isoenzyme of creatine phosphokinase indicator of ischemia in coronary arterial disease. *Chest* 75:88-90, 1979.

8. Reiffel J, et al: Direct current cardioversion effect on creatine kinase, lactic dehydrogenase and myocardial isoenzymes. *JAMA* 239:122-124, 1978.
9. Reiffel JA, et al: Does S.C. cardioversion affect isoenzyme recognition of myocardial infarction? *Amer Heart J* 97:810-811, 1979.
10. Roe C, Gale W et al: Relation of creatine kinase isoenzyme MB to postoperative electrocardiographic diagnosis in patients undergoing coronary-artery bypass surgery. *Clin Chem* 25:93-98, 1979.
11. Irvin R, Cobb F, Roe C: Acute myocardial infarction and MB creatin phosphokinase. *Arch Intern Med* 140:329-334, 1980.



## Autoantibodies in Cryptogenic Fibrosing Alveolitis

Brendan D. Thomson

### Editors:

Richard J. Lemen, M.D.

Bernard Levine, M.D.

John J. Seidenfeld, M.D.

### Abstract

A clinical association is noted between two cases of cryptogenic fibrosing alveolitis and two known autoimmune diseases. These two cases are reviewed. An observation was the presence of pulmonary fibrosis prior to the clinical expression of the known autoimmune diseases. The principal conclusion is that the autoantibodies are probably markers of the pulmonary fibrosis, and not causal mediators.

**Key Words:** Cryptogenic Fibrosing Alveolitis, Idiopathic Pulmonary Fibrosis, Autoantibodies.

From: Maryvale Samaritan Hospital, Reprint request to Dr. Thomson, 5251 West Campbell Avenue, Phoenix, Arizona 85031. Presented at the Arizona Regional Meeting of the American College of Physicians, November 14 and 15, 1980, Arizona Biltmore, Phoenix, Arizona.

### Introduction

Since Hamman and Rich first reported an acute idiopathic form of pulmonary fibrosis in 1933,<sup>1</sup> many more cases have been described. Recently, several authors have delineated immunological abnormalities and have pointed out relationships with connective tissue disease.<sup>2</sup> However, cases of cryptogenic fibrosing alveolitis associated with clinical autoimmune diseases against tissue antigens are rare. Two such cases are described.

### Case No. 1

Patient W. R. was a 72-year-old Caucasian male who was first seen in May 1978. His chief complaint at that time, was increasing shortness of breath of several weeks duration. Previous medical history included arteriosclerotic heart disease, non-insulin dependent diabetes, and chronic renal failure with serum creatinine of 2.5. He had a negative occupational history. Medications: Lanoxin, Isordil and Dyazide.

Physical examination revealed a heart rate of 110 per minute at rest, pale lips and extremities, and bilateral inspiratory rales extending one-half way up the thorax. No S3 gallop was present. Finger clubbing was noted.

Chest x-rays showed that the patient had had bilateral interstitial fibrosis in 1975. This was unchanged on a repeat x-ray in May 1978.

Spirometry revealed a forced expiratory volume in one second (FEV<sub>1</sub>) of 1.6 liters and a forced vital capacity (FVC) of 1.95 liters (normal predicted: 2.8 and 3.9). Lung volumes revealed a total lung capacity of 3.2 liters (normal predicted: 6.2 liters). Arterial blood gases on room air showed a pO<sub>2</sub> of 55, pCO<sub>2</sub> of 36 and a pH of 7.44.

Complete blood count revealed a hemoglobin of 8 g/dl with a reticulocyte count of 1%. Platelet and white blood cell counts were normal. Bone marrow aspiration revealed normal maturation and good iron storage. Indirect Coombs test was negative. Direct Coombs test was positive, and the laboratory reported warm autoantibodies coating the patient's red blood cells. Rheumatoid factor was positive at 1:20.

A diagnosis of autoimmune hemolytic anemia and idiopathic pulmonary fibrosis was made. The causes for these were sought. Skin tests for tuberculosis and coccidioidomycosis were negative. Serology for coccidioidomycosis was nonreactive. The patient underwent a fiberoptic bronchoscopy. Cultures of the bronchial washings revealed no organisms. Washing for cytology and transbronchial biopsy revealed no malignancy nor granulomas. Interstitial fibrosis was present on the biopsy.

The patient was started on Prednisone 20 mgm. PO every 8 hours. Within six days, his hematocrit rose from 27.2% to 35.4%, and his reticulocyte count rose from 1.8% to 6.3%. He was discharged on June 2, 1978, considerably improved.



The patient was readmitted on June 16, 1978, with increasing shortness of breath, cough, purulent phlegm, and fever. Chest x-ray showed bilateral pneumonitis superimposed upon his interstitial fibrosis. Arterial blood gases on air showed a  $pO_2$  of 32,  $pCO_2$  of 50 and pH of 7.29. Bronchial washings revealed *Coccidioidomycosis* spherules on PAS stain. Coccidiology showed reactive precipitins and negative complement fixation, indicating an acute infection. The patient had a rapid deterioration despite the use of Amphotericin B. He died on July 3, 1978. No autopsy was obtained.

#### Case No. 2

Patient V. H. was an 87-year-old Caucasian male when he presented in December 1978. Chest x-ray in June 1975, had shown diffuse interstitial pulmonary fibrosis. He was asymptomatic at that time, and no further studies were done, and he was not treated.

In September 1978, he developed skin lesions compatible with a clinical diagnosis of bullous pemphigoid. Skin biopsy showed a subepidermal bulla. Direct immunofluorescence showed 4+ deposition of intercellular antibodies in the epidermis. Indirect immunofluorescence demonstrated 1+ ant basement membrane antibodies in the patient's serum. He also had positive antinuclear antibody. The patient was started on low-dose Prednisone and Methotrexate. He did well on this regimen, and the skin lesions resolved over four to six weeks.

In December 1978, the patient presented with a dry cough and increasing shortness of breath. Chest x-ray revealed bibasilar interstitial infiltrates unchanged from June 1975. His Prednisone and Methotrexate were discontinued. He was started on Tetracycline. Over the next few weeks, his symptoms worsened. He was referred for chest consultation.

Previous medical history was unremarkable except for some irregular heartbeats. He had been on no other medications. Occupational history revealed that the patient had worked at a steel mill with exposure to fumes and dusts. However, he denied any asbestos exposure.

Physical examination revealed an elderly Caucasian male who appeared younger than his stated age. Heart rate was 130 per minute, and respirations were 36 per minute. Chest exam revealed bibasilar rales. Extremities had 1+ clubbing. Arterial blood gases on room air revealed a  $pO_2$  of 52,  $pCO_2$  of 36, and pH of 7.42. It was felt that the patient's recent rapidly deteriorating condition might be due to a superimposed infectious process. He was started on high dose Septra suspension. Approximately 24 hours later, he underwent an open lung biopsy. This was of no further diagnostic help. The patient had a rapid downhill course with progressive dyspnea, carbon dioxide retention, acute renal failure, and eventually pulmonary edema.

Autopsy was obtained. Skin exam was normal. The lungs exhibited black mottling on the pleural surfaces.

The apices revealed honeycombing bilaterally. Diffuse black nodules, ranging in size from 0.2 to 0.5 cm in diameter, were present in the apices. The remaining pulmonary parenchyma exhibited diffuse granularity and a rubbery consistency suggestive of interstitial fibrosis. Occasional small clots were seen in the terminal arteries. Microscopic resections revealed chronic interstitial fibrosis which was concentrated in the subpleural zone. There was dense fibrous tissue replacing alveoli with proliferation of bronchiolar epithelial cells. There were a few cells present. These consisted of small numbers of lymphocytes in the interstitium and small collections of histiocytes in the air spaces. Thromboemboli were present in the small pulmonary vessels. These findings were compatible with the diagnosis of cryptogenic fibrosing alveolitis with superimposed microemboli. Special stains were performed. There was no evidence of any other cause of pulmonary fibrosis nor of any remaining infectious process.

#### Discussion

Cryptogenic fibrosing alveolitis is a fibrosing process of the lung due to unknown causes. Historically, it was first described by Hamman and Rich in a series of papers dated 1933, 1934 and 1944.<sup>1</sup> They described four patients who had an acute progressive disease and who died within twenty-four weeks from respiratory failure. Since 1944, many more cases have been noted.

Clinically, the disease is characterized by increasing shortness of breath, bibasilar rales, clubbing of the toes and fingers, progressive hypoxemia and a fibrotic or honeycomb appearance on chest x-ray.<sup>2</sup> It is a diagnosis of exclusion, and other causes of widespread fibrosis, such as inorganic dusts, granulomas, infections, drugs, connective tissue diseases, and neoplasm must be ruled out.

Histologically, there is wide variability from the same lung specimen. Characteristic features are the "apparent" increased amounts of collagen or fibrous tissue in the alveoli; increased numbers of inflammatory cells, including lymphocytes, macrophages, plasma cells, eosinophils, and neutrophils; and cuboidalization of alveolar lining cells due to an increased number of Type II pneumocytes. The terms "desquamative" and "usual" interstitial pneumonia have been used to describe opposite poles of this single process, the term chosen being dependent upon the number of cells seen free within the alveoli. Recently, it has been shown that the total amount of collagen in fibrosing alveolitis is the same as in normal lung specimens. However, the quality and the ordering of the collagen is different.<sup>2</sup> An associated finding is increased amounts of collagenase from lung washings of the lower respiratory tract.<sup>3</sup> This appears to be a specific feature of the cryptogenic form of alveolitis.

Immunological findings have also been described. There is an increased incidence of rheumatoid factor,<sup>4</sup> anti-nuclear antibodies,<sup>5</sup> and immune complexes<sup>6</sup> in the

blood of patients with cryptogenic fibrosing alveolitis. Dreisin et al, using the sensitive Raji cell technique, detected increased levels of circulating complement containing immune complexes in thirteen of sixteen patients with the "desquamative" or cellular form of the disease.<sup>6</sup> Their immunofluorescence studies showed a granular deposition of IgG along alveolar walls and capillaries in fifteen of sixteen patients and a similar deposition of complement in all but one case. But, like others, they were unable to characterize the nature of the offending antigen. Whether these circulating immune complexes are just markers, participating mediators, or causal agents in the fibrosing process remains to be resolved.

Clinical cases of cryptogenic fibrosing alveolitis associated with autoimmune diseases in which the antigen is a known tissue are rare. J. W. Scadding described two cases of fibrosing alveolitis and autoimmune hemolytic anemia. He emphasized that in this disorder, the abnormal autoantibody, usually IgG, attaches to red blood cell walls and then fixes complement to a variable degree. The coated red cells then become attached to macrophages located in the circulation, spleen, liver, bone marrow, and lung. The time course of his cases led him to state that the interaction of lung macrophages and coated red blood cells gave rise to an inflammatory reaction within the lung and then pulmonary fibrosis.

The first patient (W. R.) is the third such case to be described. However, the pulmonary fibrosis antedated the clinical expression of the hemolytic anemia by several years. This time relationship does not support Scadding's theory. Rather, it suggests that the warm IgG autoantibodies are markers or a mediators of an ongoing inflammatory process of the lung.

The second patient had cryptogenic fibrosing alveolitis, positive antinuclear antibody to skin basement membrane, and 4+ deposition of intercellular antibodies in the epidermis by direct immunofluorescence. This is the first time that this association has been reported. Once again the pulmonary fibrosis antedated the clinical expression of the skin lesions by several years.

Both cases suggest that the known autoimmune diseases were the result and not the cause of the fibrosing process within the lung. Possible mechanisms would be the exposing of previously "hidden" antigens or the formation of new antigens by the inflammatory process.

### Summary

Two cases are presented of cryptogenic fibrosing alveolitis in association with two autoimmune diseases against other tissues. The limited pathological studies performed do not define the immunological processes within the lung more than previous studies. However, the time course of established fibrosis followed several years later by a superimposed autoimmune disease would suggest that the diseases are markers or

mediators of the inflammatory process within the lung. These cases are of interest because they enhance speculation about the mechanisms of idiopathic pulmonary fibrosis, especially those forms associated with joint and connective tissue manifestations.

### References

1. Hamman L, Rich AR: Clinical Pathologic Conference. *International Clinics* Forty-third series, 1:196-231, 1933.
2. Crystal RG: Idiopathic pulmonary fibrosis. *Ann Intern Med* 85:767-788, 1976.
3. Gadek JE, Kelman JA, Fells G, Weinberger SE, et al: Collagenase in the lower respiratory tract of patients with idiopathic pulmonary fibrosis. *New Engl J Med* 301:737-742, 1979.
4. Turner-Warwick M, Haslam P: Antibodies in some fibrosing lung diseases. I. non organ-specific autoantibodies. *Clin Allergy* 1:83-91, 1971.
5. Nagaya H, Buckley CE, Sieker HO: Positive antinuclear factor in patients with unexplained pulmonary fibrosis. *Ann Intern Med* 76:1135-1145, 1969.
6. Dreisin RB, Schwartz MI, Theofilopoulos AN, Stanford R: Circulating immune complexes in the idiopathic interstitial pneumonias. *New Engl J Med* 298:353-357, 1978.
7. Scadding JW: Fibrosing alveolitis with autoimmune haemolytic anemia; Two case reports. *Thorax* 32:134-193, 1977.





## Effect of Blood Sugar Control on the Microangiopathy of Diabetes Mellitus

M. Antonia Verso, M.D.  
Jerome H. Targovnik, M.D.

Editor:  
Stephen E. Dippe, M.D.

### Editor's Note:

The insulin pump is a novel way to peripherally deliver insulin which has been shown to nicely regulate blood sugar levels. However, as this article points out, it may not be the panacea for diabetic vascular complications. Controlled clinical trials such as these should be undertaken before widespread use of such a device is recommended. "The Pump" may be the first of many such devices to be tried for insulin delivery in the near future. Conservative monitoring of the field seems prudent at this time. **MBB**

There has been a feeling among diabetologists that good control of blood sugar can favorably affect the course of microangiopathy.<sup>1</sup> Suggestive longitudinal data supporting this has come from patients attending a large Belgium diabetic clinic,<sup>2</sup> and from a world-wide cooperative study.<sup>3</sup>

However admirable the quest for good blood sugar control, this goal had not been easily attainable. Now with the advent of home glucose monitoring and titrating of the insulin dose according to pre-prandial blood sugar, control is more feasible.

For the past few years, an open-loop system for insulin delivery has been available. This includes a pump

which infuses a solution of insulin diluted with saline, at a constant basal rate, via the subcutaneous, peritoneal or intra-venous route. In addition, a knob or button allows a pre-prandial bolus to be added. The amount of the bolus is determined by first obtaining a blood sugar from a finger-stick. Use of the pump has been enthusiastically advocated since it would appear to mimic the secretion of insulin in the non-diabetic. Indeed, almost perfect control of blood sugar has been possible.<sup>5</sup> Furthermore the statement has been made that with use of the insulin pump the course of retinal microangiopathy can be reversed in as little as two weeks.<sup>6</sup>

Disturbingly, however, was a report on the use of the insulin pump in four teenage Type I diabetics with Mauriac's syndrome, i.e., diabetic dwarfism.<sup>7</sup> All four children with no retinopathy before starting on the pump developed retinopathy. Two required laser therapy. Another child developed a vitreous hemorrhage and became blind. The authors postulated that the rapid transition from mean high glucose to normal mean glucose was at fault. With high glucose there is high Hb Alc levels and decreased red cell 2, 3 DPG resulting in tissue anoxia because of the changes in oxygen transport. Normal mean glucose meant normal Hb Alc, increased 2, 3 red cell DPG levels and a sudden increase in oxygen delivery to the tissues with resultant toxicity.<sup>7</sup>

Since the patients who have responded favorably are adults and perhaps not classically Type I diabetics, it may be argued that their retinopathy tends to behave differently.<sup>8</sup>

To assess this, a pilot project was begun at the Maricopa County General Hospital employing the insulin pump for treatment of seven patients attending the Diabetic Clinic.

Patient one is a classical Type I juvenile-onset diabetic who at the age of 36 has had diabetes for 28 years. She was selected because of high mean glucose, as well as the length of time of diabetes, despite minimal eye changes, and because of the difficulty in controlling her almost daily severe insulin reactions.

Patient two is a 67-year-old lady weighing 96 Kg who has Type I diabetes of 13 years duration. She was invited into the study because of having what was felt to be pre-proliferative changes.

Patient three is a 52-year-old non-obese gentleman with diabetes for 25 years, Type I requiring insulin for six years. He had already had retinal photocoagulation in Mexico several years previous.

Patient four is a 59-year-old female weighing 100 Kg — most likely having Type II diabetes. She had been diabetic for 25 years, on insulin for 2 years. On modest doses of insulin her mean blood glucose was in the 600%-700% range.

Patient five is a 61-year-old lady who has Type II diabetes and had been on insulin therapy for 6 years. Rapid loss of 50 pounds allowed her to be off insulin for weeks. Her mean glucose off insulin, when she started

From: Department of Medicine, Maricopa County General Hospital, 101 East Roosevelt, Phoenix, Arizona 85008. Presented in part at the Arizona Regional Meeting of the American College of Physicians, November 14 and 15, 1980, Arizona Biltmore, Phoenix, Arizona. Reprints will not be available from the authors.

this project, was 388 mg%.

Patient six is a 33-year-old classical Type I diabetic with diabetes since age 15. Her course before inclusion in the study was one of almost daily insulin reactions. Her fundi were considered by the ophthalmologist to be indeterminable because of extensive photo coagulation. Instead she had a total glomerular filtration rate before and after pump treatment.

Patient seven, a 22-year-old Type I diabetic for 5 years had a normal fluorescein angiogram and retinal photographs on inception of the study.

The first four patients were treated with a Mill-Hill infuser which delivers 66  $\mu$ ml of insulin solution/hour and delivers a bolus of 53  $\mu$  nl click of the knob.

The last three were fitted with an Auto-syringe which will deliver a scale unit of insulin solution every few minutes. A bolus pre-prandial is given by dialing in the amount desired and pressing the button.

For the patients with Mill-Hill infuser, the concentration of the insulin solution was varied so that Type I diabetics received 20% of their total insulin dose as a basal secretion while the others received 30%-40% basally.

Four patients varied their pre-prandial boluses according to the results of blood sugar obtained using Chem-Strips or the Ames Eye-tone meter. Good control was defined as blood sugars almost always below 160 mg%.

As has been anecdotally observed, all patients felt poorly the first one to two weeks of pump therapy with symptoms of hypoglycemia, sometimes with true low blood sugar results but often with normal blood sugars.

After this, all patients did well with excellent diabetic control. Only patient one had early morning reactions which were milder and occurred about once a week.

For comparison, retinal photographs were taken after three months, for all but patient five who had only been on the pump four weeks previously.

Significance was given to either regression or progression of pre-proliferative changes or development of proliferative changes. Disappearance of microaneurysms was not considered significant since it has been shown that this event merely represents capillary closure with arteriolar occlusion.<sup>9</sup>

In the Type I patient: Patient one had continued background retinography with no change. Patient six had no change in her fundal photographs. However, total GFR, before the study, was depressed at 22 ml/minute, six months after being on the insulin pump total GFR equaled 60 ml/minute. Patient seven had normal retinal photography before and after the study. His pre-study total GFR was 103/minute, a supra-normal value often seen in diabetes of short duration. In post-study this fell to 89 ml/minute. Patient three, the older man with prior laser therapy, received laser therapy while in the middle of this project.

In the Type II patients: Patient two, who had early pre-proliferative changes, progressed to frank proliferative

retinopathy. Patient four with minimal background retinopathy has a change in her eyes to proliferative retinopathy. Patient five, with proliferative retinopathy in one eye and no changes in the other eye, had changes in the unaffected eye but an increase in proliferative retinopathy in the eye already affected.

In assessing the results, a comparison must be made with the earlier studies. In contradistinction to the diabetic teenagers with Mauriac's syndrome, none of the classical Type I diabetics showed progressive eye disease with insulin pump therapy.

The fall in GFR in patient seven may be seen as a good indicator since the supra-high values have been attributed to tissue anoxia causing a vessel dilatation. However, since the normal range is 130-+20, we may actually be seeing some depression secondary to similar changes as in the eye.

Patients two and five, the Type II patients with pre-proliferative changes, were not affected favorably as has been theorized.<sup>6</sup>

Long-term results of the patients with previous history of poor control, but with no significant eye disease, will be forthcoming since the patients are still on the insulin pump.

At this time, we recommend the insulin pump for patients with diabetes who are so brittle that there is great interference in their living. Although we will continue to study these patients, we cannot make a recommendation that the insulin pump be used to reverse pre-proliferative retinopathy. Indeed, we feel that the patients be closely followed by an ophthalmologist to detect any unfavorable changes.

In summary, "Perfect control" of blood sugar means of the insulin pump was achieved in several patients with diabetes mellitus. Two had background retinopathy which didn't change with therapy. One had a supra-normal total GFR which fell to 89 ml/minute. Two patients with pre-proliferative retinopathy and one with background developed retinopathy from pre-proliferative changes.

## References

1. Cahill GF, Etzwiler DD, Frankel N: "Control" and diabetes. *N Engl J Med* 294:1004-1005, 1976.
2. Pirort J: Diabetes mellitus and its degenerative complications: prospective study of 4,400 pts. observed between 1947 and 1978. *Diabetes Care* 1:168-188, 1978.
3. West KR, Keen H, Jarrett RT, et al: Relationship of vascular disease to fasting plasma glucose (FPG) and other variables - 35 years with diabetes (DM) abstract #4. *Diabetes* 29:(Suppl 2)1a, 1980.
4. Danowski TS, Sunder JH: let injection of insulin during self monitoring of blood glucose. *Diabetes Care* 1:27-33, 1978.
5. Pickup JC, Keen H, Parson JA, Albert KG: Continuous subcutaneous, insulin infusion: An approach to achieving normoglycemia. *Br Med J* 1:(6107)204-207, 1978.
6. Keen H: Personal Communication.
7. Drash AL, Travis D, Travis L: Progressive retinopathy with approved metabolic control in diabetic dwarfism. Abstract. *Diabetes* 29:1, 1980.
8. Woldoff H: Personal Communication.
9. Goldberg ME, Fine SL, Kohmer EN, Dollery CT: The natural history of diabetic retinopathy. In: *Symposium on the Treatment of Diabetic Retinopathy*. Public Health Service Publication, No. 1890, 1966.





## Endoscopic Papillotomy in Complicated Biliary Tract Disease

Richard A. Kozarek, M.D.  
Robert A. Sanowski, M.D.

### Editors:

George Burdick, M.D.  
Stephen Glouberman, M.D.  
Steven R. Kanner, M.D.

### Abstract

Endoscopic papillotomy, consisting of endoscopic electrocoagulative section of the sphincter of Oddi, has been used for removal of retained common bile duct stones since 1976 in this country. We report a group of twenty elderly patients with common duct disease in whom severe underlying medical illness usually precluded surgical exploration. Eighteen of these patients (90%) had complete stone passage, whereas two (10%) had incomplete stone passage. One individual developed transient pancreatitis, a second, developed bleeding not requiring transfusion, for a 10% complication rate. There were no deaths. These results, along with an acceptable morbidity-mortality, a short procedure time (30-90 minutes), little recuperative period, and an attenuated hospitalization stay (2-5 days), suggest that endoscopic papillotomy should become the treatment of choice in patients with amenable biliary tract disease.

**Key words:** endoscopic papillotomy.

From: Veterans Administration Medical Center, Department of Gastroenterology, 7th Street and Indian School Road, Phoenix, Arizona 85012. Presented at the Arizona Regional Meeting of the American College of Physicians, November 14 and 15, 1980, Arizona State University, Phoenix, Arizona.

## PATIENT DATA

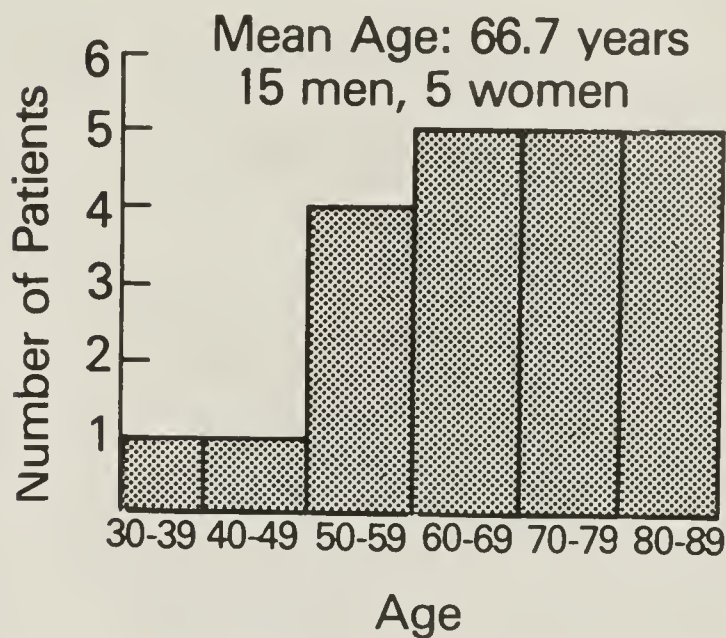


Figure 1

### Introduction

Recurrent choledocholithiasis, occurring in 10% of individuals with a previous common bile duct exploration,<sup>1</sup> may be associated not only with pain, but also with complications. These include cholangitis, liver abscess, obstructive jaundice and biliary cirrhosis.<sup>2-4</sup> Historically, demonstration of such choledocholithiasis has required a second abdominal exploration and surgical stone removal.<sup>5</sup> Endoscopic section of the papilla of Vater, a nonoperative technique originally developed in Germany and Japan,<sup>6,7</sup> has been used increasingly in this country for removal of residual or recurrent ductal stones. We describe the technique and our clinical experience in a group of extremely ill and usually elderly individuals, many of whom had additional periampullary pathology.

### Patients and Methods

Twenty patients, mean age 66.7 years (Figure 1) presented with variable clinical or radiologic evidence of common bile duct stones, distal stenosis, or both (Figure 2). The majority of these individuals had significant underlying illness (Figure 3) as well as clinical or endoscopic evidence of local periampullary pathology (Figure 4). All patients were studied in a fluoroscopic suite after surgical consultation, informed consent, and type/cross for blood. Antibiotic coverage was used only in individuals with active cholangitis. The procedure itself, done with the side-viewing duodenoscope and after meperidine or diazepam sedation, consists of free cannulation of the common bile duct with a polyethylene catheter, the distal end of which contains an externalized wire. After orientation of the cannula into

## INDICATIONS FOR PAPILOTOMY

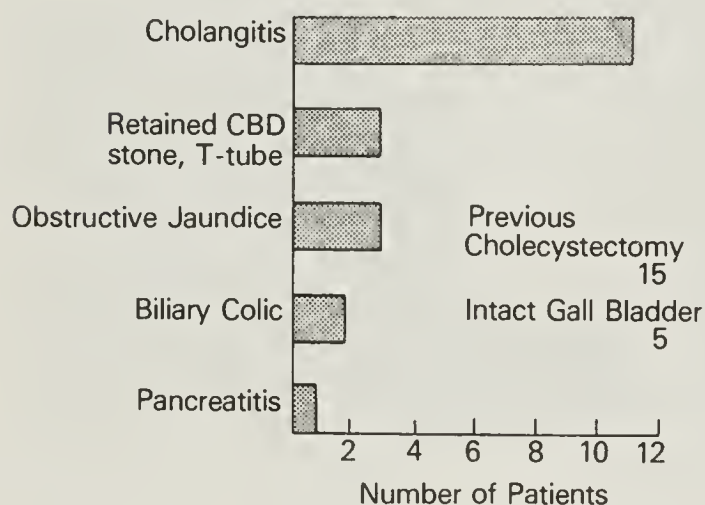


Figure 2

the axis of the common duct, the wire is flexed, and a blend of cutting and coagulative current is used to section the sphincter of Oddi (Figure 5). When undertaken for stones, passage is either spontaneous or facilitated by use of a balloon catheter or endoscopic stone basket.

### Results

Endoscopic papillotomy resulted in complete stone passage in 18 of 20 patients in whom the procedure was done for choledocholithiasis (Figure 6). Three of the 18 successful patients subsequently underwent surgery: one individual with rheumatic heart disease and an acute stroke subsequently underwent cholecystostomy immediately after papillotomy; one individual with respiratory failure subsequently underwent elective cholecystectomy 6 weeks after his cholangitis was resolved by papillotomy; a third individual underwent common duct exploration 6 weeks post-papillotomy with the finding of a widely patent sphincterotomy site and a stone-free common duct. Two patients had unsuccessful procedures; one, an elderly man, had several stones removed prior to subsequent choledochenterostomy to remove the remaining calculi; a second individual had his common duct stones successfully removed, but stones remaining in a low-lying cystic duct had to be surgically extracted.

Two patients developed complications (Figure 6). One individual had a transient bout of pancreatitis; the other dropped her hematocrit from 43 to 37, but did not require transfusion.

## UNDERLYING ILLNESSES

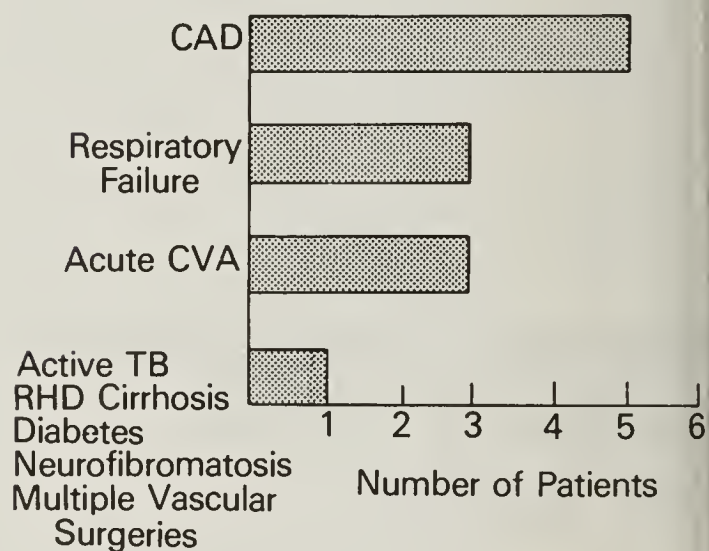


Figure 3

### Discussion

Originally developed in Germany and Japan in 1960 for retained common duct stones,<sup>5-7</sup> endoscopic papillotomy is currently being used for papillary stenosis, to remove duct stones in high risk patients with an intact gallbladder, and also as a palliative maneuver for periampullary neoplasms.<sup>5,8</sup> The success rate for the procedure ranges between 80%-95% in most series, with a complication and mortality rate of 7-8 and 1%-2% respectively.<sup>9,10</sup> Immediate complications include perforation, bleeding, and stone impaction necessitating coordination of this procedure with surgical back-up. Delayed complications include pancreatitis and a 1% stenosis rate of the sphincterotomy incision.<sup>8,10</sup> The latter complication may necessitate a repeat endoscopic or surgical procedure.

Contraindications to this procedure include uncooperative patient, significant bleeding diathesis, inability to ascertain the papillotomy position, and long strictures of the common bile duct. Large stones (>2 cm) and periampullary diverticula are relative contraindications.<sup>9</sup>

The benefits of this procedure are particularly noteworthy in the elderly where perioperative mortality for common duct exploration ranges between 4%-8%.<sup>4,11,12</sup> It is also of particular benefit in individuals with severe underlying medical illness. In this setting, the benefits of a short procedure, (30-90 minutes) done without general anesthesia are obvious. Coupled with decreased hospitalization time (average two to five days)



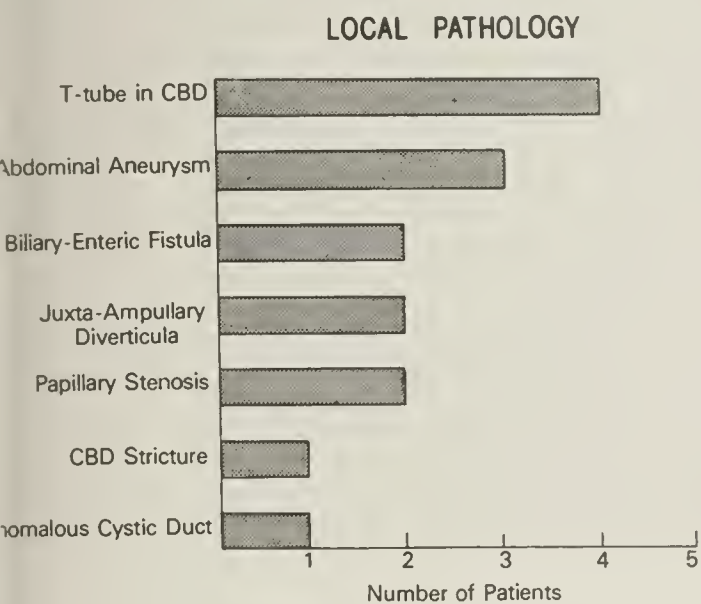


Figure 4

minimal recuperative period, the foregoing benefits of our patient success in this series, suggest that endoscopic papillotomy should become the initial modality of therapy for amenable biliary tract disease.

#### References

Way LW, Admirand WH, Dunphy JE: Management of choledocholithiasis. *Ann Surg* 176:347-356, 1970.

Wendert A, Robertson B: Natural history of gallstone disease. *Gastroenterologia* 50:376-381, 1966.

Welch JP, Donaldson GA: The urgency of diagnosis and surgical treatment of suppurative cholangitis. *Am J Surg* 131:527-532, 1970.

Haff RC, Butcher HR, Ballinger WF: Biliary tract operations: A review of 1,000 patients. *Arch Surg* 98:428-434, 1969.

Classen M, Ossenberg FW: Non-surgical removal of common bile duct stones. *Gut* 18:760-769, 1977.

Demling L, Koch H, Classen M, Belohlavek D, Schaffner O, Schwanberger K, Stolte M: Endoskopische Papillotomie und Gallensteinentfernung. *Dtsch Med Wochenschr* 99:2255-2257, 1974.

Kawai K, Akasaka Y, Hashimoto Y, Nakajimi M: Preliminary report on endoscopic papillotomy. *J Kyoto Prefectural Med Univ* 82:353-355, 1973.

Silvis S: American experience with endoscopic papillotomy to date. Presented at the William Beaumont Gastrointestinal Symposium, El Paso, Texas, March 20, 1980.

Kozarek RA, Sanowski RA: Endoscopic papillotomy in the high risk and aging patient with biliary tract disease. *J Clin Gastroenterol* 2:375-378, 1980.

Cotton P: Non-operative removal of biliary tract stones: Duodenoscopic sphincterotomy. In: *Development in Digestive Diseases* Berk JE, (ed), Lea & Febiger, Philadelphia, pp 127-140, 1979.

Stefanini P, Carboni M, Patrassi N, DeBernardinis G, Negro P, Loriga P: Transduodenal sphincteroplasty. Its use in the treatment of benign obstruction of the common duct. *Am J Surg* 128:672-675, 1974.

Thomas CG, Nicholson CP, Owen J: Effectiveness of choledochoduodenostomy and transduodenal sphincterotomy in the treatment of benign obstruction of the common duct. *Ann Surg* 173:845-850, 1971.



Figure 5

Arrow delineates papillotomy in proper position prior to electrocoagulative section of the sphincter mechanism. Multiple stones are present in the common bile duct.

#### RESULTS

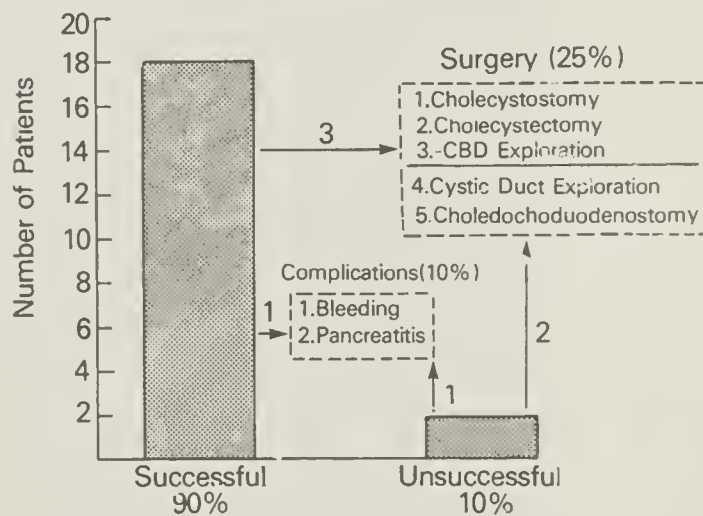


Figure 6



# Immunologic and Cytochemical Characterization of Lymphoreticular Malignancies

Thomas M. Grogan, M.D.  
Mary Jane Hicks, M.D.  
Carolyn Jolley, M.T. (ASCP)

**Editors:**

David S. Alberts, M.D.  
Ellen M. Chase, B.S.

**Editor's Note**

This month's article summarizes the important uses of new laboratory methods in the diagnosis and characterization of lymphomas, leukemias, and other more rare lymphoreticular malignancies. These tests have progressed from research tools to practical tests which help the clinician sort out difficult diagnostic problems. Examples of practical uses are distinguishing between undifferentiated cancer and lymphoma (which is considerably more responsive to therapy), between histiocytic lymphoma and acute leukemia, and between pleomorphic lymphoma and Hodgkin's disease (particularly mixed cellularity or lymphocyte-depleted types). Drs. Grogan and Hicks would welcome requests for consultation from Arizona pathologists who might wish to consider using some of these new techniques which are so well described in their article.

D.S.A.

**Abstract**

Recent advances in immunologic and cytochemical techniques are described with emphasis placed on their application in the diagnosis of lymphoma and leukemia. The tissue section method of immunologic assessment is detailed along with cell suspension (E-rosette) and enzymatic methods applicable to diagnosis.

From The Department of Pathology, University of Arizona Health Sciences Center, 1501 North Campbell Avenue, Tucson, Arizona 85724

**Introduction**

Determination of the immunologic and cytochemical characteristics of neoplastic lymphoreticular cells rapidly becoming a critical step in the accurate diagnosis and proper treatment of lymphoreticular malignancies.<sup>1-5</sup> The lymphoreticular neoplasms which are presently well characterized manifest a remarkable quality: the retention in neoplasia of immunologic and cytochemical properties found in proplasia (reactive cells) and ontogeny (normal cell development). Because of this biologic property, individual lymphoreticular malignancies are now recognized as arising from specific subsets of reactive and developing lymphoreticular cells.

The impact of this immunologic insight on clinical practice has been immediate, as immunologic techniques now allows detection of distinct subtypes of lymphoma and leukemia which were previously indistinguishable morphologically.<sup>5</sup> Most significantly, immunologic subtypes have subsequently proven to be clinically distinct with important differences in mode of spread, incidence, age and sex predilection, and response to treatment.<sup>5</sup>

Much of the present knowledge of the immunologic properties of leukemias and lymphomas stems from recently acquired techniques and reagents. Hence, prior to discussing the practical diagnostic application of this new body of knowledge, we will briefly outline the technical advances which make the applications possible.

**Advances in Technique:**

Recent advances in technique allow assessment of immune surface markers in tissue sections. Specifically, the technique of Warnke et al.<sup>1,2</sup> has proven useful. This technique involves the snap-freezing of portions of surgically removed lymphoid tissue and the application of immunofluorescent antibody reagents to the microtome-sectioned frozen tissue. This technique offers the advantage of full immunologic assessment of the neoplasm in its architectural setting. This permits the pathologist to combine knowledge of tumor pattern with immunologic findings (see Figures 1 and 2).

The availability of newer, more selective immunologic reagents has been a critical factor in improving tissue section immunologic assessment. Previously, immunoreactive and neoplastic lymphocytes with receptors might nonspecifically bind immunoglobulin reagents, giving a confusing polyclonal staining pattern.<sup>2</sup> Now, with pepsin-digested immunoglobulin reagents devoid of the Fc portion, the remaining Fab portion of the antibody complexes with the desired antigen alone, making immunologic assessment more specific. Further, the recent availability of hybridoma derived monoclonal antibodies allows detection of surface markers without cross-reactivity to heterogeneous subpopulations of antibody.<sup>6</sup>

Major advances in cytochemical reagents also have had a major impact on the diagnosis of lymphoreticular malignancies. The major improvements are in improved



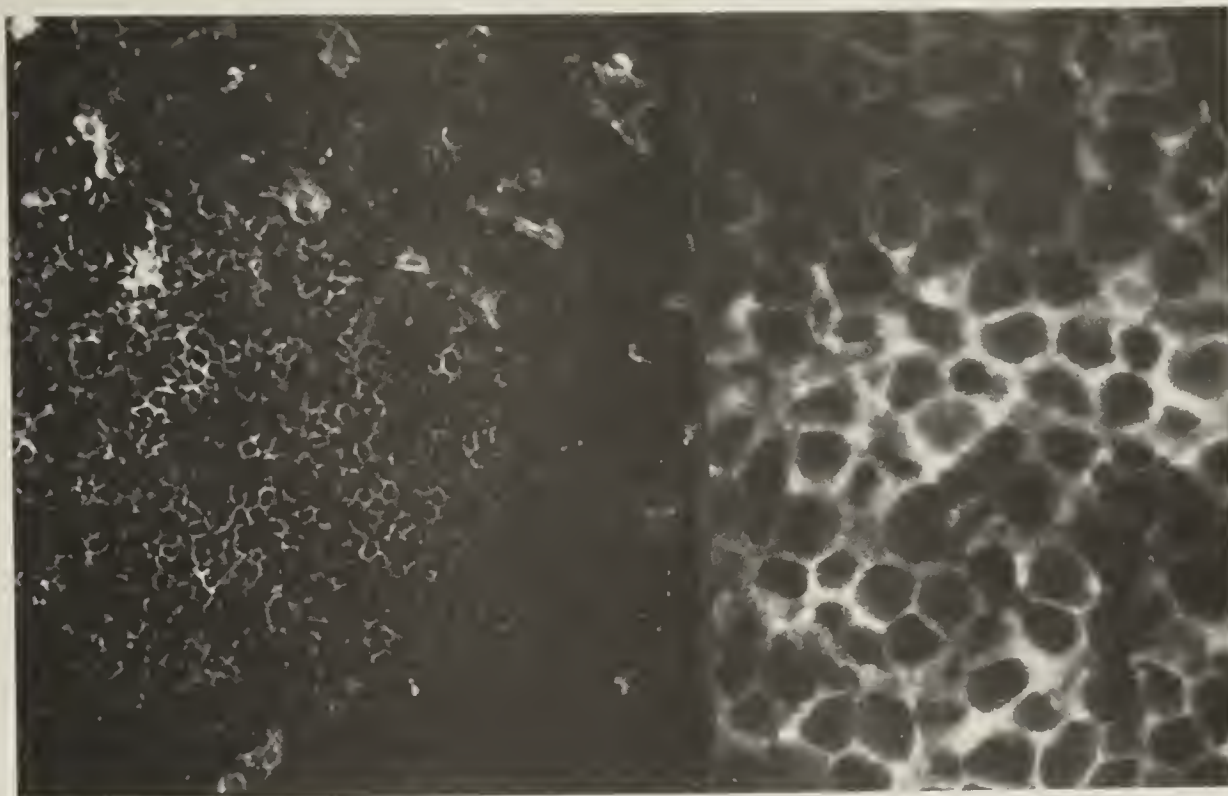


Figure 1, A

reactive lymph node stained with fluorochrome-conjugated anti-kappa antibody by indirect immunofluorescence (IF) technique. A reactive germinal center with abundant kappa-bearing cells is centrally located. Original magnification, 1000x.

Figure 1, B

The same reactive germinal center stained with fluorochrome-conjugated anti-lambda antibody by IF. A mosaic pattern of lambda-bearing and negative cells is demonstrated. The presence of both kappa- and lambda-bearing cells demonstrated by Figures 1A and 1B indicates a reactive node with a polyclonal pattern. Original magnification, 1000x.



Figure 2, A

non-Hodgkin's lymphoma of poorly differentiated lymphocytic (PDL) type stained with fluorochrome-conjugated anti-kappa by IF. Virtually all cells appear as kappa-bearing cells. Original magnification, 250x.

Figure 2, B

The same PDL lymphoma stained with fluorochrome-conjugated anti-lambda antibody by IF. There is an absence of lambda-bearing cells. The overwhelming kappa predominance pictured in Figure 2A indicates a monoclonal, light-chain-restricted pattern. Original magnification, 250x.



Figure 3, A

Pictured is a neoplastic lymphoid cell from a "lymphoblastic" T-cell lymphoma which formed a spontaneous E-rosette and then stained for acid phosphatase (ACP). The punctate, dark, cytoplasmic ACP staining demonstrated is characteristic. Original magnification, 1500x.



Figure 3, B

The same neoplastic E-rosettes stained with a fluorochrome conjugated antibody to Tdt demonstrating a reticular nuclear staining pattern. Original magnification, 2500x.

substrate specificity (i.e., alpha naphthyl butyrate esterase, ANBE)<sup>7</sup> and improved reagent quality (i.e., acid phosphatase, ACP). In these cytochemical reactions the substrate reacts with a specific hydrolyzing enzyme (hydrolase) found in a particular lymphoreticular cell: the acid phosphatase (ACP) in lymphocytes (see Figure 3) and the butyrate esterase (ANBE) in histiocytes and monocytes. The substrate/enzyme interaction is coupled with an organic dye (AZO dye) and a precipitate is observed (Figure 3). As is the case with the immunologic features, the cytochemical characteristics of lymphocytes and histiocytes persist in neoplastic transformation.<sup>3,4</sup>

#### Applications of Immunologic and Cytochemical Findings

##### B-Cell Neoplasms:

Normally lymphocytes can be divided into three major subpopulations: B-cells or bone marrow-derived cells, T-cells or thymus-influenced cells, and non-B-, non-T-cells or "null cells." Immunologic detection of B-cells is facilitated by several identifying surface markers. The most conspicuous indicator of B-cell lineage is the production of immunoglobulin (Ig). Immunoreactive clones normally produce immunoglobulin in abundance and variety: kappa and lambda light chains; G, M, D, and A heavy chains (see Figure 1). With neoplastic transformation, a single clone produces immunoglobulin in a restricted fashion: a single light chain, and frequently a single heavy chain (see Figure 2).

The monoclonal immunoglobulin production is keeping with the clonal origin of lymphoreticular neoplasms.<sup>8</sup>

Neoplasms of late-differentiated, secreting B-cells (plasmacytoid lymphomas, extramedullary plasmacytomas) usually secrete monoclonal immunoglobulin in abundance and are readily detected serologically. Unfortunately, relatively few primary lymphoreticular neoplasms derive from such secreting cells. The majority are derived from lymphocytes in the middle phases of lymphoid ontogeny.<sup>1,2</sup> These cells are characterized by the production and surface presentation, but not secretion, of immunoglobulin. Further, since these cells frequently contain a scant amount of surface immunoglobulin (SIg), detection requires avid, highly specific antibody reagents, high affinity fluorochrome conjugates, and a very sensitive detection system (i.e., high-intensity epifluorescence microscopy). For these reasons accurate immunologic assessment in tissue sections has only recently become technically feasible.

Most non-Hodgkin's malignant lymphomas studied immunologically in frozen tissue sections<sup>1,2</sup> are of lymphocytic origin and of B-cell lineage. These include well-differentiated lymphocytic lymphoma, nodular poorly differentiated lymphocytic lymphomas (see Figure 2) and Burkitt's lymphomas. These lymphoid neoplasms generally produce immunoglobulin in a monoclonal fashion.<sup>8</sup> The exceptions to the equivalency



B-cell neoplasia and monoclonality are few and controversial.<sup>9,10</sup> Polyclonal lymphomas described with the peroxidase-antiperoxidase (PAP) technique may be "artificially" polyclonal.<sup>9</sup> The rare polyclonal lymphoma otherwise described is best characterized as an atypical lymphoproliferative disorder occurring in an immunologically deficient host, not a malignant lymphoma.<sup>10</sup>

A lymphoid neoplasm may be of B-cell type, yet fail to produce immunoglobulin. B-cell lymphomas devoid of immunoglobulin have been recently described,<sup>2</sup> though they lack immunoglobulin they possess surface molecules like the immune antigen (Ia) which identify them as probable B-cells.<sup>2</sup> The large cell lymphomas in particular may have cells in this category.<sup>2</sup> It appears that Ia positive, SIg negative forms of large cell lymphoma have a considerably more favorable prognosis than immunoglobulin positive forms,<sup>2</sup> suggesting that immunologic typing of this form of lymphoma is critical in establishing prognosis.

### **T-Cell Neoplasms:**

Lymphoid neoplasms derived from thymus-influenced lymphoid cells (T-cells), while devoid of SIg, are also recognized by their distinct surface molecules. Quite inexplicably, mature T-cells have a surface receptor which binds sheep red blood cells (SRBC), thereby forming spontaneous E-rosettes (see Figure 3). This phenomenon observed in cell suspensions allows easy recognition of mature T-cells. After the SRBC binding has occurred, smears of the rosetted suspension are made to allow morphologic distinction between normal and cytologically atypical (neoplastic) E-rosettes (see Figure 3).

Mature T-cells also possess a variety of recognition and differentiation surface antigens which range from the universal (LEU-1, mature peripheral T-cell antigen)<sup>6</sup> to specific indicators of functional subsets (LEU-2A, helper T-cells; LEU 3a, suppressor T-cells).<sup>11</sup> Helper and suppressor T-cells modulate the humoral immune response.<sup>11</sup> As with B-cell neoplasms, some of the T-cell neoplasms derive from differentiated functional T-cell populations.<sup>12</sup>

Besides surface marker characteristics, subtypes of T-cells are readily characterized by their enzyme content. Probably as a concomitant of involvement in cellular immunity (e.g., cytolytic effect) some T-cells possess hydrolases (i.e., acid phosphatase) in lysosomal form. These enzymes are readily detected (see Figure 3) and serve as a marker of some normal and neoplastic T-cells.<sup>4</sup>

The surface marker and enzymes mentioned so far mainly characterize mature T-cells. Immature T-cells are characterized largely by their nuclear enzymes. All T-cells in their ontogeny in the thymus initially possess the nuclear thymic-derived enzyme: terminal deoxynucleotidyl transferase (Tdt).<sup>13</sup> Mature T-cells lose the enzyme before entering the peripheral blood; neoplastic immature T-cells retain the enzyme. Hence,

Tdt represents a convenient enzymatic marker for immature thymic-derived lymphoid cells. The presence of even a few circulating Tdt-bearing lymphoid cells indicates a possible T-cell neoplasm.<sup>13</sup>

Figure 3 demonstrates neoplastic T-cells from a patient with T-cell "lymphoblastic" lymphoma/leukemia. The neoplastic cells pictured are both E-rosette and Tdt positive. They were first allowed to form E-rosettes and then stained with a fluorescein-conjugated antibody to Tdt. Tdt/E-rosette positive lymphoid cells also exist in normal T-cell ontogeny, again suggesting a lymphoid neoplasm derived from an ontogenically distinct subset.

Some of the immunologically distinct T-cell neoplasms have also proven to have distinct clinical profiles. "Lymphoblastic" T-cell lymphoma/leukemia is an example.<sup>5</sup> The patients are usually adolescent males with frequent mediastinal, bone marrow, peripheral blood, central nervous system, and gonadal involvement; a rapid clinical course is characteristic.<sup>5</sup> In the past morphology alone failed to distinguish this immunologic and clinical subtype from less aggressive forms of lymphocytic lymphoma or leukemia. "Lymphoblastic" T-cell lymphoma/leukemia was appreciated as a distinct biologic and clinical entity only after immunologic and cytochemical characterization.<sup>5</sup>

### **Histiocytic Neoplasms:**

Neoplasms of histiocytic and monocytic lineage (i.e., malignant histiocytosis and monocytic leukemia) also possess recognizable surface markers: Ia antigen, complement receptors, and Fc receptors. However, since many lymphoid cells also possess these surface molecules, they do not uniquely identify histiocytic/monocytic cell lines.<sup>2</sup>

Monocytes and histiocytes are best characterized by their hydrolyzing enzyme content — ACP, ANBE, and lysozyme (enzymes which are critical in bactericidal function) — not by nonspecific surface molecules. Of these enzymes, ANBE is the best marker enzyme, as it is most specifically restricted to monocytic and histiocytic cells.<sup>2,3,7</sup> Neoplastic monocytic and histiocytic cells consistently contain ANBE, indicating that the enzyme is a reliable marker for these neoplasms.<sup>3</sup>

### **Conclusion**

From the cases and applications just cited, it must be apparent that a complex set of immunologic and cytochemical features characterizes the lymphoreticular malignancies. In our laboratory, full characterization of a single lymphoreticular neoplasm may involve testing for all of the following: immunoglobulin light and heavy chains, Ia antigen, subset T antigens (LEU 1, 2a, 3a), E-rosette formation, ACP, ANBE, and Tdt. This approach requires considerable expenditure of resources and time, but it yields an immunologic and cytochemical profile which is useful in predicting the biologic behavior of lymphoreticular malignancies.

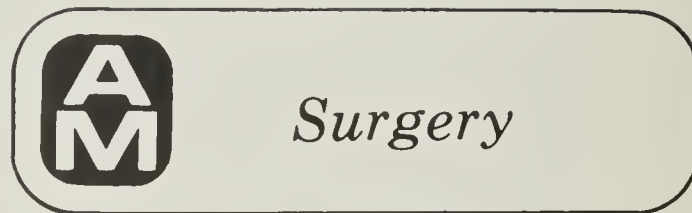
Recent advances in immunologic reagents (availability of hybridoma-derived F(ab')<sub>2</sub> antibodies, advances in

technique (snap-frozen tissue technique), new cytochemical stains, and advances in microscopy (availability of high-intensity epi-illumination immunofluorescence microscopes with interference-band filters) make tissue section immunologic assessment a practical possibility. Expertise in histopathologic, immunofluorescence, and cytochemical technique is necessary. Reproducible results are achievable if fulltime committed technical support is available.

As fruitful as the described techniques are in revealing the pathobiology of lymphoreticular malignancies, the absolute mainstay of lymph node diagnosis remains standard histopathologic technique. Immunologic technique, however efficacious, remains an adjunct.

#### References

1. Warnke R, Levy R: Immunopathology of follicular lymphomas: A model of B-lymphocyte homing. *N Engl J Med* 298:481-486, 1978.
2. Warnke R, Millar R, Grogan T, Pederson M, Dilley J, Levy R: Immunologic phenotype in 30 patients with diffuse large-cell lymphoma. *N Engl J Med* 303:293-300, 1980.
3. Risdall RJ, Sibley RK, McKenna RW, Brunning RD, Dehner LP: Malignant histiocytosis: A light-and electron-microscopic and histochemical study of an unusual case. *Cancer* 44:2158-2169, 1979.
4. Catovsky D: T-Cell origin of acid phosphatase positive lymphoblasts. *Lancet* 2:237, 1975.
5. Nathwani BN, Kim H, Rappaport H: Malignant lymphoma, lymphoblastic. *Cancer* 38:964-983, 1976.
6. Warnke R, Levy R: Detection of T and B cell antigens with hybridoma monoclonal antibodies. *J Histochem Cytochem* 28:771-776, 1980.
7. Li Cy, Lam KW, Yam LT: Esterases in human leukocytes. *J Histochem Cytochem* 21:1-12, 1973.
8. Levy R, Warnke R, Dorfman RF, Haimovich J: The monoclonality of human B-cell lymphomas. *J Exp Med* 145:1014-28, 1977.
9. Warnke R, Pederson M, Williams C, Levy R: A study of lymphoproliferative diseases comparing immunofluorescence with immunohistochemistry. *Am J Clin Pathol* 70:867-75, 1978.
10. Robinson JE, Brown N, et al: Diffuse polyclonal B-cell lymphoma during primary infection with Epstein-Barr virus. *N Engl J Med* 302:1293-1298, 1980.
11. Evans RL, Lazarus H, Penta AC, Schlossman SF: Two functionally distinct subpopulations of human T-cells that collaborate in the generation of cytotoxic cells responsible for cell-mediated lympholysis. *J Immunol* 120:1423, 1980.
12. Lawrence EC, Broder S, Jaffe ES, Braylan RC, Dobbins WO, Young RC, Waldman TA: Evolution of a lymphoma with helper T-Cell characteristics in Sezary Syndrome. *Blood* 52:481-491, 1978.
13. Hutton JJ, Coleman MS: Terminal deoxynucleotidyl transferase measurement in the differential diagnosis of adult leukemia. *Br J Haem* 34:447-56, 1976.



## Scrotal Cystocele

MacDonald Wood, M.D.

Editor:

Jack A. Friedland, M.D.

#### Abstract

Only fifty-one cases of scrotal cystoceles have been reported. An additional case is presented. T classification, diagnosis and treatment of scrotal cystoceles are discussed.

#### Introduction

An ordinary bladder hernia or a sliding hernia of the bladder is frequently seen in inguino-femoral hernia. According to Iason,<sup>1</sup> the overall incidence of bladder hernia is between one and three percent, and Koontz found this incidence to be ten percent in men over the age of fifty who had large inguinal hernias. The protrusion of bladder is usually small.

A large scrotal hernia (scrotal cystocele) is rare, with only fifty-one reported cases. Since 1951, when a review of thirty cases was done by Levine,<sup>3</sup> who added two of his own, there have been nineteen cases reported.<sup>4,1</sup>

This presentation is an additional case report of a patient with a massive scrotal hernia of the bladder, which was found at the time of an operation for intestinal obstruction due to incarcerated small bowel in a recurrent direct inguinal hernia.

A brief discussion will be given of the classification, diagnosis, and treatment of scrotal cystoceles.

From: 550 West Thomas Road, Phoenix, Arizona 85013



## e Report (Figure 1)

Abdominal pain, nausea, vomiting, and obstipation of several days duration were associated with abdominal distension in an 81 year old white man. These symptoms and a tender and tense right inguinal mass prompted hospital admission in August of 1978. Previous operations had been bilateral inguinal hernia repair, a transurethral prostatic resection, and insertion of a left ureteral prosthesis. One month prior to admission a left retro-lithotomy was done. He also had hypertensive cardiovascular disease with atrial fibrillation. A large right scrotal mass had been present for ten years. On admission he was alert and cooperative, but was markedly dehydrated. Diffuse abdominal protrusion had the appearance of a stepladder pattern. The abdominal percussion was tympanitic and rushes were heard on auscultation. Bilateral inguinal scars were present as well as a healed wound in the left lower quadrant (site of recent ureterolithotomy). A fixed, minimally tender, large mass was in the right inguinal area, and a nontender, large mass 10 x 8 cm filled the right scrotum without a normal testis at the caudal end. His prostatic bed was flat and smooth and the rectal ampulla contained brown stool. On roentgenography of the abdomen a stepladder pattern of dilated small bowel with liquid levels was seen.

Fluid and electrolyte balance were restored and he was operated on within three hours of admission. Preoperative diagnoses were a small bowel obstruction due to incarceration of intestines in a recurrent right inguinal hernia, and a right scrotal hydrocele. Through a vertical mid-line incision small bowel was found to be incarcerated in a large direct inguinal hernia. An inguinal incision with division of the fascial ring was made and reduction of the dusky incarcerated and adherent small bowel was accomplished. Division of dense adhesions, in the sac around the incarcerated bowel and around the distally collapsed three feet of ileum, released the obstruction. A normal color returned to the bowel which developed good muscular contractions. The cecum and ascending colon lay in the right retroperitoneal area and the urinary catheter was inserted in the base of the bladder.

The large scrotal mass, which separated easily from the laterally placed spermatic cord and testis, lay retroperitoneal to the inguinal hernia sac, and was covered at its narrowest point at the inguinal ligament. To my surprise, this large mass was a cavity which was connected with the urinary bladder; a large scrotal hernia of the bladder had been excised at the level of the inguinal ligament. The bladder opening was closed in two layers. The hernial sac was excised and the medial fascial defect was repaired. Post-operatively on roentgenography an intact bladder was seen. He voided well after removal of the urinary catheter and he was discharged on the ninth post-operative day.

Readmissions six and twelve months later were for bladder neck resection and removal of bladder calculi. He has had no recurrence of the hernia.

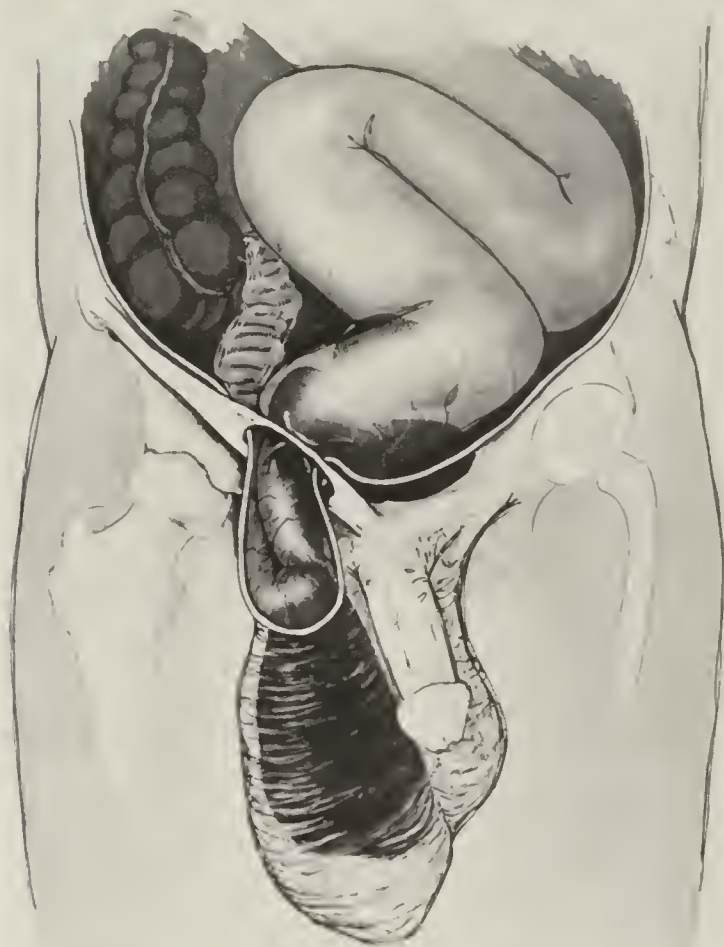


Figure 1

## Comment

Intravenous pyelography had been done after the ureterolithotomy but no mention was made of a scrotal cystocele. On reviewing the films, after repair of the hernia, protrusion of the bladder into the scrotum was evident. A scrotal hernia of the bladder was not suspected before laparotomy for bowel obstruction as the mass of ten years duration had been interpreted as a hydrocele.

## Discussion

### Classification

The first classification of bladder hernias by Jaboulay and Villard<sup>14</sup> in 1895 has continued to be accepted. Protrusion of the bladder through a defect in the inguinal area may be paraperitoneal (most common), extraperitoneal or intraperitoneal. A paraperitoneal hernia is usually a sliding hernia and is partially covered with peritoneum; and when associated with an inguinal hernia may be confused with a hydrocele.<sup>9</sup>

### Diagnosis

Diagnosis of a scrotal bladder hernia is often difficult, as symptoms may be absent or obscure. Diagnosis is seldom made pre-operatively.<sup>1,13</sup> Urinary frequency, nocturia, and dysuria may be present. Two-stage urination, the urge to urinate after pressure is applied to the scrotal mass, or decrease in the size of the scrotal swelling after voiding, suggest a bladder scrotal hernia.

Transillumination of the scrotal cystocele during cystography has been noted.<sup>3</sup>

An abnormal cystogram was first noted in 1921 by Sgalitzer;<sup>15</sup> a dumbbell shaped bladder (a large part in the scrotum and the remainder in the abdomen), the bladder pulled to the side of the hernia, and the contrast medium seen in the scrotal herniated bladder after voiding.

Bladder herniation may be overlooked on excretory urography. In association with an inguinal hernia, Reardon and Lowman<sup>11</sup> listed a diagnostic triad that should lead one to the diagnosis of bladder herniation: 1) Lateral displacement of the distal third of one or both ureters, 2) a small asymmetrical bladder, 3) incomplete visualization of the bladder base.

It should be emphasized that the scrotal area, which is not routinely viewed on excretory urography, should also be included in the area of examination whenever a scrotal mass is present. Hinman<sup>16</sup> has recommended routine cystography in all men over the age of fifty who have large inguinal hernias.

### Treatment

The majority of bladder hernias are accidentally found during herniorrhaphies and the bladder is often inadvertently injured. Fistulae, sepsis, and death have occurred. An error in diagnosis resulted in incision and drainage of a scrotal bladder hernia for diagnosis of a scrotal abscess in one instance and a scrotal incision for tumor in another (both patients recovered).<sup>9</sup>

Scrotal bladder hernia has been reported to contain calculi, papilloma,<sup>9</sup> malignancy,<sup>1,6</sup> and even a ureter.<sup>1</sup>

Many bladder hernias may be reduced. Large scrotal bladder hernias are best treated by resection and two layer closure with insertion of a urethral catheter. Subsequent relief of any bladder neck obstruction should be done.

Herniated diverticular portions of the bladder are composed of all layers of the bladder; only Koontz<sup>2</sup> has reported herniation of a true diverticulum of the bladder.

### Summary and Conclusion

Scrotal herniation of the urinary bladder is rare; only fifty-one cases have been reported. An additional case is presented, it being found at the time of release of bowel obstruction due to incarceration of intestines in a recurrent inguinal hernia.

A scrotal cystocele is usually found in an elderly man, with a large inguinal hernia, who has symptoms of bladder neck obstruction.

Diagnosis is not usually made preoperatively but excretory urography and cystography in men with large scrotal masses will aid in the diagnosis of a scrotal cystocele; the roentgenogram should include the area of scrotal enlargement.

The treatment is the operative replacement of the bladder or preferably resection of the large diverticular cavity, closure of the bladder, repair of the hernia and subsequent correction of any bladder neck obstruction.

### References

1. Iason AH: Repair of Urinary Bladder Herniation. *Am J Surg* 77, 1944.
2. Koontz AR: Sliding herniae of diverticulum of bladder. *Ar* 70:433-438, 1955.
3. Levine B: Scrotal cystocele. *JAMA* 147:1439-1441, 1951.
4. Barquin OP, Madsen PO: Scrotal herniation of the lower u tract. *J Urol* 98:508-511, 1967.
5. Buttermann M: Urinary bladder herniation into the scrotu. *Sm J Med* 39:517-521, 1972.
6. Elliot RC: Incarcerated hernia of bladder containing epidermoid carcinoma. *So Med J* 65:1019-1020, 1972.
7. Ketonen PES, Mattila T, Koikkalainen K, Pantzar P: M scrotal herniation of the urinary bladder. *Internatl Surg* 6: 172, 1976.
8. Liebeskind A, Elkin M, Goldman SH: Herniation of the bla. *Radiology* 106:257, 1973.
9. Marcus R: Scrotal cystoceles, report of a case with papilloma. *J Surg* 41:182-184, 1954.
10. Ray B, Darwish ME, Baker RJ, Clark S: Massive inguinosa bladder herniation. *J Urol* 118:330-331, 1977.
11. Reardon JV, Lowman RM: Massive herniation of the bla "The roentgen findings." *J Urol* 97:1019-1021, 1967.
12. Redman JF, Williams EW, Meacham KR, Scribner LJ: treatment of massive scrotal herniation of the bladder. 110:59-61, 1973.
13. Soloway HM, Portnoy F, Kaplan A: Hernia of the bladder. 84:539-543, 1960.
14. Jaboulay M, Villard V: Des hernias inguinales et crurales vessie. *Ann Med* Lxxviii, 239-254, 281-293, 1895.
15. Spaltizer M: Die Veränderung der Blasengestalt bei a Bruchptorten. *Mitt u. d. Grenzgeb. d Med u. Chr.* 34:132, 1921.
16. Hinman F: *Principles and Practice of Urology*. W.B. Saunders C 923, 1935.





## Special Article

# Housestaff Evaluation Using Patient Instructors:

## Brief Report

John J. Rutala, M.D., F.A.C.P.  
Julia L. Stillman, M.D., F.A.C.P.  
Errell L. Sabers, Ph.D.

The American Board of Internal Medicine (ABIM) discontinued its oral certification examination in 1970. Written certifying examinations have continued. Such examinations assess the candidate's knowledge base and simulate clinical problems, providing relevant patient data at the candidate's request. Written patient management problems or the recently proposed computerized management simulations bear close relationship to true encounters where the physician collects his own data from an actual patient and then integrates the information to solve problems. Written examinations also do little to assess attitudes, the ability to develop rapport with patients, or the skills of obtaining history and performing the physical examination.

Since the discontinuation of the oral examination, individual training programs have been asked to attest to the clinical competence of trainees. This usually is done in a subjective manner with a composite evaluation being prepared by the program director from those of several faculty members, each of

whom may have used different criteria.

The ABIM does provide a form which can be completed by a faculty member who has observed the houseofficer examine a patient. Such an encounter may be influenced by the presence of an observer in the examining room. Physical findings may not be verified by the faculty member's re-examining the patient. Subjectivity on the part of the observer may enter into the evaluation. Not all programs conduct such observations.

To gain additional information on housestaff performance, some programs have adopted other techniques, such as videotaping a patient-houseofficer encounter. A camera (instead of a faculty member) may influence the nature of the interaction. Faculty time must still be utilized to review the tape and to give feedback. Again findings may not be verified if the patient is an unknown. Certain maneuvers are difficult to judge on tape; for instance: Did the examiner thoroughly palpate both lobes of the prostate gland when doing the rectal examination?

Some programs have utilized chart audit to increase the amount of data on the individual houseofficer. Once again, recorded findings may not be verified. With this technique, no actual patient interaction is observed so that attitudes and relationships are not assessed.

A method for assessing housestaff clinical competence in an objective manner is now available. It overcomes many of the deficiencies of other evaluation models mentioned above. It allows the houseofficer to approach a clinical problem for which he must gather his own data. All findings have been previously verified by faculty but, once the program is underway, faculty time commitment is low. All maneuvers are evaluable. Attitudes and relationships may be assessed.

The model has thus far employed chronically-ill patient instructors (PIs) to evaluate housestaff in internal medicine and family practice training programs. The PIs were patients with stable, abnormal cardiovascular or pulmonary findings who had been trained by faculty physicians to present for physical examinations and then to evaluate the skills, attitudes, and interpersonal relationships of housestaff. All PIs were chosen because of their intelligence (not necessarily medical knowledge). All had findings judged by faculty to be among those that housestaff in their programs should be expected to recognize. Each PI was thoroughly trained to understand his own physical findings, to evaluate the proficiency and thoroughness of a specialty examination relevant to those findings, and to evaluate the correctness of identification of all findings. All PIs

used in the program had previous experience in the teaching and evaluation of medical students.

Each houseofficer examined at least one PI between the third and eighth month of the first post-graduate training year. (Most houseofficers examined more than one PI.) The houseofficer was asked to perform the particular specialty examination in order to identify his strengths or deficiencies in physical diagnosis skills. At the completion of the session, the PI assigned a performance score based upon the thoroughness and proficiency of the examination (using a pre-set check list). Concurrently the houseofficer recorded a full description of the PI's findings on a content checklist which was later reviewed to derive a content score. After both checklists were completed, the PI reviewed examination techniques and content findings with the houseofficer. The houseofficer might then repeat faulty portions of the examination under the direction of the PI. The PI also then gave comment on interpersonal skills and suggested changes which might increase cooperation and/or comfort on the part of a patient. No formal attitudinal score for the houseofficer has been assigned by PIs thus far in the program, although such a score has now been added as a modification for all future evaluations. At no time during the session (which usually lasted about an hour and a half) did a physician enter the room.

Analysis of results indicated the following:

1. Housestaff obtained significantly higher content scores than their medical student counterparts on both the cardiovascular and the pulmonary examinations. Mean housestaff performance scores, however, were no different from mean student performance scores.

2. There was no significant correlation between performance and content scores in either specialty area. For those houseofficers who had examined both cardiovascular and pulmonary PIs, there was no significant correlation between content scores on the two specialty examinations nor any between the two performance scores.

3. Directors of the participating university-based internal medicine program were asked to rank the ability and skills of their first-year houseofficers using whatever traditional evaluation means they had at their disposal. There was no significant correlation between directors' rankings and content scores on either specialty examination. There was, however, significant positive correlation with performance scores.

4. Each university-based internal medicine intern who was being evaluated in the program was asked to rate the

From: The University of Arizona Health Sciences Center, Department of Medicine (Dr. Rutala) and the Preparation for Clinical Medicine Program (Drs. Stillman and Sabers). The work reported here was supported in part by grants from the National Fund for Medical Education and the Department of Health, Education and Welfare. Presented at the Arizona Regional Meeting of the American College of Physicians, November 14-15, 1980, Arizona Biltmore, Phoenix, Arizona. Reprint requests to Dr. Rutala.

abilities of his peers on several separate characteristics. Such ratings were done in an anonymous manner and each houseofficer was told not to rate himself nor any peer with whom he felt he had had insufficient contact to offer a meaningful opinion.

No correlation was found between PI performance scores and the composite peer ratings. Better correlation was found between peer ratings and the content scores achieved by housestaff on both specialty examinations. All correlations between content scores and peer evaluations of the four characteristics rated were positive. Peer rating of overall competence correlated significantly with pulmonary and cardiovascular content scores. Peer rating of abilities at problem recognition correlated significantly only with cardiovascular content scores.

5. A final correlation of the PI evaluation was performed with the relative ranking of each of the university-based internal medicine interns given by that department's intern acceptance committee during their application to the program. That ranking was almost entirely subjective — giving no formal weight to grades or examination scores. There was no correlation of such ranking with PI performance evaluation. However, significant correlations were found between acceptance committee ranking and cardiovascular content scores, overall peer ratings, and peer evaluation of each houseofficer's ability to acquire a data base.

#### Summary

The intern obtained higher content scores than did the medical student. This substantiates that the PI evaluation is sensitive enough to differentiate levels of training.

A lack of correlation between performance and content scores in either specialty examination supports the contention that a compulsive examiner may neither be able to describe findings more accurately than a less compulsive one nor be able to report more findings.

Lack of correlation between content or performance scores in the two specialty areas suggests that each specialty examination requires separate evaluation.

The subjective rankings of the houseofficers by the program directors correlated best with performance scores. The directors have personal contact with the houseofficers primarily during formal rounds and conferences. Their evaluations, therefore, may have been based more on thoroughness in those ordered, traditional settings than on actual diagnostic skills.

Peer ratings correlated positively with content scores on the PI evaluations —

suggesting that daily cooperation of peers in actual patient care provided them a reasonable opportunity to evaluate the diagnostic accuracy of other houseofficers.

Acceptance committee rankings correlated best with peer evaluations and with content scores. Both of these parameters reflected diagnostic accuracy more than compulsive thoroughness. Therefore, even though the process conducted by this acceptance committee to rank prospective interns was almost entirely subjective, it was adequate to predict some differences in clinical performance.

PI evaluation provides those advantages mentioned previously. It now further has been validated as an integral component of a training program's objective assessment of the clinical competence of its houseofficers: Although PI evaluation encompasses that available from several other sources, it provides numerical, comparative data not available from any other single source. Each houseofficer may receive individualized, immediate feedback on his abilities. Deficiencies on an individual or group level may be identified for program directors early on in training so that plans for remediation may be formulated.

The PI evaluation may not be that tool which gives an absolutely precise prediction of the performance of a houseofficer when he interviews and evaluates an actual patient. It is, however, clearly one means of quantifying certain vital components of overall clinical competence.

A full presentation of the statistical basis of this brief report may be found in Rutala, PL, Stillman, PL, and Sabers, DL: *Evaluation of Housestaff Clinical Competence Using Patient Instructors, Evaluation and the Health Professions*, (In Press), 1981



#### President

Clyde W. Kurtz, M.D.

#### President-Elect

John E. Oakley, M.D.

#### Vice President

Neopito L. Robles, M.D.

#### Secretary

Earl J. Baker, M.D.

#### Treasurer

Clifford D. DeBenedetti, M.D.

#### Past President

John T. Clymer, M.D.

#### Executive Director

Bruce E. Robinson

#### Publishing Committee

Marshall B. Block, M.D., Chairman

Burnell R. Brown, M.D.

George E. Burdick, M.D.

Kenneth B. Desser, M.D.

Benjamin K. Harris, M.D.

Jonathan M. Levy, M.D.

William B. McGrath, M.D.

Jay W. Smith, M.D.

Sidney C. Werner, M.D.





## Laboratory Tests Immunological Diseases - Teaching and Containment

A recent editorial in the *Annals of Internal Medicine* notes an annual increase in laboratory test use nationally of 15% per year, some six billion tests in 1980. These "ticket" items were held responsible for a large fraction of the sizable growth in physician-directed medical expenses. It is prudent, therefore, to examine fully our present practices in laboratory use, especially of those tests enjoying new popularity. The focus is on an approach taught to current medical school graduates.

**HLA Typing.** Some fifty histocompatibility antigens of human leukocytes can be readily identified. Each individual is positive for only eight of these, two for each of the four alleles, A, B, C and D. Complete genotyping is desirable in organ transplantation so one may search for the best crossmatch, but is very expensive and not helpful in ordinary problems. The discovery that certain of these antigens are positively correlated with specific diseases has led to the practice of testing for the one under suspicion in such cases. Thus, the HLA-B27 antigen occurs 90% of the time in ankylosing spondylitis, but in only 6% of the general population. While it is satisfying for the physician to know that an antigen is present when ankylosing spondylitis is suspected, it has no "decision-making" benefit. In fact, a generalist is much more likely to counter the HLA-B27 antigen at random among patients with low back pain due to "muscle strain" than to find it "specifically" among the small number presenting with true ankylosing spondylitis since its prevalence is less than 0.1%. Increased risk for Reiter's disease, psoriatic spondylitis, acute arthritis, multiple sclerosis, lupus erythematosus, rheumatoid arthritis and others has similarly been linked to one or more HLA antigens, but fail as diagnostic tests for similar reasons. Summing it up, HLA typing is useful for genetic or epidemiologic study, but is not helpful in everyday clinical care.

**Antinuclear Antibody (ANA) Tests.** In systemic lupus erythematosus (SLE), the ANA test is positive in over 99% of cases. The antibodies contributing to this positive reaction may be specifically directed to double stranded DNA (rim pattern), DNA-Protein (homogeneous pattern), RNA or Sm (speckled pattern) or a combination of these and perhaps still others. Laboratories routinely report both the ANA titer and pattern, the former correlating with disease severity and the latter with subsets or variants of SLE. Many labs offer "ANA packages" which include special measurement for specific antibodies as well as the ANA itself. The value of these subset measurements is quite limited however, for the following reasons.

1. The treatment of SLE and its variants, with the exception of severe renal complication is largely symptomatic and will depend on clinical manifestations, not subsets of ANA.
2. The prognosis in these conditions is exceptionally variable and is predicted by such tests.
3. Specific diagnosis of SLE or its variants is largely a clinical determination not a laboratory one.

In summary: The measure of ANA is a valuable confirming test for SLE or its variants. Knowledge of the ANA subsets improves understanding of epidemiology, but does relatively little to aid clinical management. Remember that as many as 3%-5% of the normal adult population may be ANA positive, but SLE prevalence is only 0.1%, so clinical manifestations are primary in diagnosis.

**Immune Complex Tests.** SLE and many other diseases are mediated by an inflammatory response to circulating immune complexes. Accurate detection of these complexes therefore has implications for diagnosis, prognosis and treatment management. The cryoglobulin test, if one rules out multiple myeloma and macroglobulinemia, is a specific determination of circulating immune complexes. While not as sensitive as the tests described below, it is equally specific (with the above constraints) and is an excellent and inexpensive way of following response to therapy. One seldom needs more sensitive tests. Further, the more sensitive tests are frequently confusing since they are positive in a number of diseases in which no therapy program is suggested by their presence.

The first component of human complement (Clq) precipitation test takes advantage of the fact the highly purified Clq precipitates immune complexes specifically. This is a very sensitive test, but not widely available and is expensive. It is positive in a number of conditions not yet identified otherwise as immunologically mediated. It is particularly valuable in

quantitating immune complexes during intensive therapy programs such as in plasmapheresis in acute lupus complications.

The Raji cell assay makes use of permanently established tissue culture of lymphoblastoma cells which have receptor sites for the complement proteins of immune complexes. This test is the most sensitive of the three. Its uses and constraints are identical to those for the Clq assay.

**Complement Determinations.** The complement system includes nearly twenty serum proteins that become involved in domino fashion via either the Classical Pathway or the Alternative Pathway as effectors of the inflammatory process. Measurements of the aggregate function of the entire classical pathway include the CH50 and CH100, but no aggregate measurement is available for measuring the Alternative Pathway. Measurements of individual component molecules are available in every case, some of them (C3, C4, Factor B) at most primary care hospital laboratories. In addition, assays are available for most of the half dozen inhibitors of this system. Again, it has been popular to offer "complement packages" for the clinician's easy requisition. However, the overwhelming number of cases requiring evaluation can be managed with nothing more than the most readily available and cheapest test for C3 and perhaps C4. With the rare exception of hereditary deficiencies in complement components or complement inhibitors, almost all the abnormalities of serum complement are due to rapid consumption of complement proteins during immune complex disease. A low C3 under this circumstance reflects disease activity and usually returns to normal with remission. In this instance, it has essentially the same clinical meaning as a presence of immune complex measured as described above. Its closest clinical analogy is the erythrocyte sedimentation rate that is considerably more specific.

**Specific Organ Antibodies.** Specific autoantibodies to the adrenal gland, the epidermis, the glomerular basement membrane, mitochondria, gastric parietal cells, intrinsic factor, acetylcholine receptor site, and others are now available in commercial laboratories. Rare and specific diseases are implied whenever tests are positive. However, all tests are found positive in a certain number of individuals without disease. The presence of these antibodies contributes more to the intellectual considerations of the diseases or to needed data in clinical research than they do to individual diagnosis. In some cases antibody titers may be used as ways of following clinical response to therapy.

Clinical judgement remains the most

important factor in the management of diseases of immunologic mechanism. Frequently, treatment modalities can be properly selected without specific diagnosis. The laboratory evaluation is frequently helpful and/or comforting, but should be carefully selected to avoid the dangers of cost overkill.

John T. Boyer, M.D.  
Professor  
Department Internal Medicine

Louis J. Kettle, M.D.  
Dean

back to the fund designated for Arizona's College of Medicine.

Another high spot came at the installation luncheon when Dr. Kurtz, after praising the Auxiliary for its hard work and innovative projects, spoke movingly of the emotional support a physician draws from spouse and family.

The convention reflected the careful planning by 1980-1981 Auxiliary President Joyce Newman, the convention chairmen Jeanne Davis and Toni Stuart and their committees. They even had signs posted all over The Pointe Resort complex so Auxilians and doctors could find their way to the various activities without compass and guide. Maps don't really help much at The Pointe!

Mary Ellen Vaughan, warm and gracious, installed Janet Hoffmann as 1981-1982 state president. Mary Lee Collins of Scottsdale will serve as president-elect; Carolyn Corrigan of Tucson as first vice-president; Aileen Rounseville of Kingman as second vice-president; Susan Cummins of Tucson as secretary, and Carolyn Morgan of Phoenix, a second year as treasurer. Patti Bennan of Prescott will be a director for two years, serving with Joyce Newman of Glendale and Connie Wry of Tucson.

A bare two hours after their installation, the new officers and board met to begin work in the new Auxiliary year.

Carolyn Corrigan, who is health project coordinator, presented information about child safety auto restraints. She told the board members that motor vehicle accidents are the number one killer of children . . . on an average, three children die each day. It is estimated that 90% of the deaths and 80% of the serious injuries could be prevented if children always rode in dynamic crash-tested child safety restraints. Carolyn is contacting county auxiliaries to see if there is a need for this kind of safety education and perhaps "loaner" seats in their communities, if they have people interested in helping, if they'd like to take it on as a project this year or next.

Then Dr. Charles Kerr, Tucson psychiatrist, asked the Auxiliary's support for the Governor's Council on Physical Fitness. The Council, concerned about the lack of adequate physical education in Arizona schools, wants to educate teachers and administrators about the benefits of realistic programs. It plans to start at the elementary and junior high levels.

"Team sports don't really test athletes in terms of fitness skills," said Dr. Kerr, "Coaches teach kids to play a game, how to win. We need to teach them how to live."

Connie Wry was named the Auxiliary's representative to work with the Council.



**Arizona  
Medicine**

**Editor**  
**Marshall B. Block, M.D.**

**Associate Editors**  
**Kenneth Desser, M.D.**  
**C. Herbert Fredell, M.D.**  
**Warren Gorman, M.D.**

**Editorial Board**  
**Thomas E. Blittker, M.D.**  
**John R. Green, M.D.**  
**John W. Kennedy, M.D.**  
**William B. McGrath, M.D.**  
**Arthur R. Nelson, M.D.**  
**Charles Nugent, M.D.**  
**Eric Prosnitz, M.D.**  
**Sydney Salmon, M.D.**  
**Lawrence Stern, M.D.**

**Managing Editor**  
**Bruce E. Robinson**

**Editorial Assistant**  
**Joan M. Alexander**

## Auxiliary Highlights

### "Just Tremendous!"

That's the best way to describe the ArMA Auxiliary's 1981 convention.

There were stimulating workshops covering the various "Facets of Communication" . . . opportunities to hear Dr. Dan Cloud, newly installed as President of AMA; Dr. Clyde Kurtz, the new President of ArMA, our own AMA Auxiliary President Mary Ellen Vaughan . . . a colorful Mexican luncheon and fashion show . . . the interesting display of arts and crafts by members . . . a "Fun Run" for the hardy, tennis for the competitive . . . proud reports from the county auxiliaries about the many health projects carried out by their members.

High on the list of outstanding moments had to be the spontaneous applause and cheers Saturday night as Jeanne Weiland announced we had reached our goal of \$20,000 for AMA-ERF with the last-minute help of everyone at the President's Banquet. More cheers when Lois Kettel was named winner of an AMA-ERF prize of some \$265.00 and immediately turned it all



# America Is Land of Wonders

Daniel T. Cloud, M.D.  
President  
American Medical Association  
Inaugural Address  
June 10, 1981



My good friends. The Presidency of the American Medical Association is truly the greatest honor and responsibility in our great profession. I am enormously proud and humble. I thank you for the confidence you place in me, and I pledge my total commitment to the missions we must undertake together in the coming months, and in future years, for I regard election to this esteemed office as a lifetime pledge of allegiance to the American Medical Association.

This moment is certainly the high point of my more than 30 years of travel down the corridors of medicine. They were memorable, exciting years, full of adventure, challenge, and unforgettable experiences — years warmed by cherished friends, many of whom are here tonight.

I would like first to reminisce a bit and take you back to the 1940s. A thing that would affect our lives for years to come, the rise of socialized medicine, enveloped Great Britain, soon gathered momentum in Washington, and loomed as a major obstacle to the private practice of medicine in America.

The AMA leadership made a bold, far-reaching decision. It was in 1948, shortly after Harry Truman was elected President in an upset over Tom Dewey. For the first time in AMA history, the leadership levied a \$25 voluntary assessment. The membership rallied, and two and one-half million dollars were collected.

That was a dramatic turning point for the AMA. It was also the start of my strong affinity for this great organization. I admired that decision our leaders made then, even though I was but an intern, and in the light of what has transpired, I admire it even more today. Think of the incredible soul-searching they must have done.

In the 60s and 70s, the politics of medicine increased its tempo, and a succession of political aggressions came along to challenge our professionalism and our freedom.

Over the years, the great debate on how to deliver medical care took many turns. We faced proposals to ration care with

tricky cost cap devices, and to limit utilization with complex and unworkable systems. The Federal Trade Commission accused us of antitrust, challenged our principles of ethics, our role in medical education, and other activities aimed at protecting the public interest.

GMENAC, the controversial Graduate Medical Education National Advisory Committee, founded by HEW more than four years ago, reported that careers in medicine should be curtailed to head off a physician glut they predicted for 1990.

We have health planning laws, PSRO, subsidized HMOs, privacy invasions and more. The pattern is familiar and the picture is clear. Forces in government have waged a great campaign to seize control of health care and relegate the private practice of medicine to a subordinate status.

But we have not succumbed. National Health Insurance: Defeated. Hospital Cost Cap: Defeated. Utilization Regulations: Defeated. Health Planning: In trouble. PSRO: In trouble. HMO Subsidies: In trouble. GMENAC: Defunct. AMA Ethics: Strengthened.

The AMA, of course, faces other challenges. Malpractice flamed into a raging crisis in 1975, and again threatens to erupt. We created AMACO, our own insurance company, which stabilized reinsurance for physician owned companies. We stand prepared to do more, and we certainly must do more.

In recent years we have gone to court. Landmark lawsuits, against government to block intrusive regulations, against hospitals to curb exploitation of medical staffs and preserve the due process rights of contract physicians, and against chiropractors, who challenged our duty to warn against quackery, have all been won!

Indeed, the shape of the AMA has changed dramatically since our distinguished predecessors made that great decision more than 30 years ago, and we plunged uncompromisingly into the national political arena.

Yet, our primary commitment to the vast scientific and educational programs, which dignify the AMA and serve our

patients, has never flagged. We have done nothing through it all but aim to enhance the quality of medical care.

We have fought to preserve a private health care system, and indeed, fought for professionalism and freedom. We have not failed. We must never fail.

Now the American Medical Association has reached another turning point. It is time to set the dimensions of our modern role and forge our new agendas. We have achieved much, but we must do more. There is no time for omphaloskepsis. (For those who may not share my pediatric surgeon's lust for things congenital, omphaloskepsis means the thoughtful contemplation of one's own navel.)

The American Medical Association's leading role in scientific matters is exemplary. Our Council on Scientific Affairs, for example, has prepared many learned dissertations on timely and important scientific subjects, such as infant nutrition, organ transplantation and alcoholism.

Our publications — *JAMA*, the specialty journals, the *American Medical News*, and the countless books, pamphlets, news and magazine articles, media communications, and our library and computer services, reach thousands of physicians and untold numbers of the public each week. Our foreign editions reach more thousands in a dozen countries, in five languages, and above all, extend the hand of the American Medical Association to our comrades around the globe.

These activities consume more than two-thirds of our total resources. They comprise the basic game plan of the AMA, our taproot of credibility and prestige. They must be strengthened as needed, and tailored to synchronize with evolving realities in a dynamic scientific environment, and preserve our preeminence in scientific matters.

The American Medical Association's traditional commitment to medical education must continue. I believe we have a duty to assure that all physicians are offered high quality, lifetime programs of learning, and I believe it is imperative to continue our responsibility for graduate and undergraduate medical education. We share this role now with appropriate fellow organizations. We must not relinquish that duty.

Given our fundamental commitment to scientific and educational missions, it is essential that we simultaneously protect the freedom so vital to professionalism, our stake in socioeconomic and politics is therefore boundless. We have taken the lead in a number of successful efforts, such as our cost commission project and the voluntary effort, and these are effective efforts, but they are only the beginning. Our agenda for the 80s must include innovative and dynamic cost programs. If we do not affirmatively lead the private sector in cost containment, we will have that initiative torn from our grasp. We have one of the most effective lobbies in

Washington. We are informed, straightforward, respectful and above all, credible.

And we must expand our legislative efforts for political pressures will assuredly increase. State lawmakers can point the way for national legislation. Myriad state laws on health, sometimes in strange and conflicting ways. Arizona, for example, the only state without Medicaid, was embroiled in the development of a controversial individual health care plan, an alternative to Medicaid which may have great national impact.

Therefore, I recommend that we aim to develop the capability to monitor and react to state legislative proposals in conjunction with our state and local societies. Thus acting as a true federation, we can greatly enhance both national and state political influence.

These then are the elements of a new agenda for the coming years, a bold and venturesome agenda, scientific, educational, socio-economic, and political. Elements of necessity, and duty, drawn from the old, poised for the new and adaptive to the vicissitudes of the time.

How must we proceed? We are strong, and we are healthy, but as we stand, we cannot fully meet all of the demands that inevitably will confront us in the balance of this decade. Therefore, I call for the physicians of America to join in a nationwide effort to build the organizational strength of the American Medical Association. And I propose a three-pronged program to achieve this goal.

First, we must build membership. Membership absolutely is the most important issue before us today.

Membership is the lifeblood of the American Medical Association. Members participate and formulate policies in the spirit of a working federation. And they provide dollars. Clearly we are no stronger than our membership, and our dollars. Although the Association has developed alternative sources of revenue and taken other prudent measures to enhance the financial strength of the organization, membership dues are still the primary source of our dollars. The best way for the AMA to increase revenue is to build membership.

We have undertaken a variety of membership market programs with considerable success. Our direct recruitment pilot study, for example, is encouraging, but inadequate. We must do more. Unfortunately, we suffer, as a federation, from the hands of some constituent societies that refuse to recruit members. For example, many practicing physicians simply have never been asked to join at any level.

It is imperative that we construct a situation to maximize membership at all levels of the federation — county, state and national — so desirable that it will be unthinkable not to belong. I therefore recommend that all local and state societies immediately join the AMA in a continuing federation-wide membership recruitment campaign.



Second, we must build unity. We must further encourage state and local societies to join in cooperative ventures with the AMA, such as membership, education, political activities and malpractice. They must be informed that longer representation will flow from greater membership. The specialty organizations are a valued component of the AMA. They speak for the particular interests of their members, which is proper and desirable. At the same time, the AMA is the only organization that effectively can present the common interests of all physicians and their patients.

It is vital to have a balanced, healthy relationship between organizations. We should work together, draw from strengths, and bolster weaknesses. The underlying concerns of the AMA and specialty societies are inseparable. If we cooperate effectively, it will bear heavily upon the ultimate strength of medicine. An excellent example of common ground is the Joint Commission on Accreditation of Hospitals: an important commitment, badly in need of continual cooperation.

Other special groups in medicine must be solicited to build unity. Military physicians, women physicians, foreign medical graduates and academic physicians, for example, have certain concerns that can be addressed in the interest of strengthening membership. We should face the realistic problems of these groups and others fairly and objectively, and find ways to increase their involvement.

We have, however, at least one dazzling success in our membership situation: the students and house staff, their members, and their voices have flourished. They are a vital, exciting complement to the AMA, and I believe we should greatly increase their representation.

There has been no better opportunity in the evolution of the Association to forge new and strong alliances between the organizations of medicine. It is time to resolve our differences with constructive discussion and negotiation and move forward together in a positive mode of cooperation. No one can doubt the need.

Finally, we must build participation. During my years in the House of Delegates and on the Board of Trustees, I have with enormous fascination watched the politics of medicine grow and fade, and I have developed a kind of smug and acid objectivity, found primarily in those who intend never to devote their entire lives to run for anything again.

I humbly offer a few observations on participation. I am absolutely convinced that the American Medical Association will flourish so long as members participate to the utmost at all levels, and will fail if they do not.

Our process is democratic. Indeed, it is painfully democratic. But that pain must never vanish. We must always involve as many physicians as possible, and accurately reflect their wishes, however tedious that may be.



**L. to R. - Ella Kimball, AMA Auxiliary Western Regional Vice-President; AMA President, Dan Cloud; Jan Lisboa, Maricopa County Auxiliary Past-President during 1981 Annual Meeting of ArMA.**

It is essential to have a healthy balance between our House of Delegates and its leaders. A functional and realistic system of checks and balances is crucial. The House of Delegates is the ultimate authority. There is no acceptable alternative to the participative democracy we now enjoy. If that system is weakened, it will impose a clear and imminent danger to the welfare of the AMA.

Clearly, the program I propose to build organizational strength, demands simultaneous implementation of its three phases. Membership, unity and participation go hand in hand and build upon each other, just as the federation reflects the strength of all its parts. If we are to fulfill our new agendas, we must start from within.

My good friends — we are into the new decade of the 80s. America has a new President, a new administration, new commitments and assuredly will have new challenges. America also has fresh hope, boundless energy, and dauntless courage. For America, and for medicine, it is a time for renewal. Our task is brobdingnagian, but our goals are noble. I am confident we will succeed.

Alexis De Tocqueville once wrote:

*"America is a land of wonders, in which everything is in constant motion and every change seems an improvement . . . No natural boundary seems to be set to the efforts of man; and in his eyes what he has not yet done is only what he has not yet attempted to do."*

In this land of wonders, in which we Americans are blessed to live, the profession of medicine is a cornerstone of freedom. . . A freedom that must be preserved.

# Annual Meeting Highlights

---

## Presidential Address

**The Streets are the Same,  
But the Traffic Pattern Isn't:  
Do We Stop, Pull Over or Go Ahead?**

Clyde W. Kurtz, M.D.

*Delivered to the House of Delegates of the Arizona Medical Association on Wednesday, May 20, 1981, at 10:00 a.m.*

To be given the opportunity to serve as this Association's President for the coming year is indeed an honor. To fulfill the responsibilities of the position as your spokesman is probably the biggest challenge I have faced in my 23 years of practicing urology in Arizona, for I — like most of you — have engaged only infrequently in the broader social-economic sphere of our profession.

Today, I would like to discuss with you a few of the issues which have a special effect on how we will continue to practice medicine and bring into focus a few of the Association's activities and plans for the coming year.

The government's involvement in health, like other areas, comes about when a problem of need exists and is not solved in the private sector. We have witnessed this increasing involvement with the Hill-Burton funding for hospital expansion in the 40's and the enactment of Medicare (to take care of the elderly) and Medicaid (to take care of the poor) in the 60's. The Health Manpower Act was passed in the 60's to help financially distressed medical colleges and to foster a perceived need for training more physicians. In the 70's, the Health Planning Law was enacted and a host of increasingly regulatory activities came into being in an effort to stem the increasing cost factors brought about through the social excesses of the prior decade. Now, with Reaganomics in the saddle, we are truly in a cost-containment environment; the emphasis, however, shifting from regulatory means to



competitive initiatives, from federal back to state control. For the near future, national health insurance debate will likely remain on the back burner. In terms of health-care policymaking today, most of the traffic will be found on one street — a street called cost containment — and that congestion will likely be with us for some time to come. The problem, however, does not lack for attention. Indeed, one need look no further than last month's Journal to find some article relevant to the problem. Government agencies, the media, social scientists, consumer groups, business and labor organizations have all made numerous statements and have asked many questions on the subject. In 1976, a national commission on the cost of medical care, though free-standing and represented by members of business and industry, insurers, academia, consumers and government, was sponsored by the AMA, bringing into clear focus causative factors and possible solutions. Its three-volume report is worth the reading. The challenge was met more appropriately by the private sector in the birth of the Voluntary Effort spearheaded by the AMA and the Nation's two largest hospital associations, with wide supportive efforts given by civic business groups and health professionals at all levels. Indeed, the VE has saved the American people some three billion dollars since 1976 without unduly compromising either quality or availability of patient care. The continuous effort provided by physicians, hospitals, industry and patients all attests to the fact that there is no single cause for this escalation in health costs — no single scapegoat — and that the solution will best come



ough our enlightened effort from all sectors. Cost is still one of three old health-care streets, the other two being quality and access to that care. And, changes in the traffic pattern taken in any one of these streets are bound to affect one or both of the other two. Do we stop, pull over or go ahead? Walter Lippmann once said: "For every right that you wish, you have a duty which you must fulfill, for every right you wish to preserve, you will have to sacrifice comfort and your ease. There is nothing for nothing anywhere." Are these not appropriate thoughts to ponder on as we attempt to maintain a pluralistic health-care system and our own initiatives and rights within that system?

Most of you — and I — have long given professional testimony to those principles of doctor-patient relationship, freedom of choice, and access to quality of care, though means to measure the latter seem to elude present economic theory. At what point are these valid concepts to be put in jeopardy and at what cost? These are cornerstones, long in place and serving well, of a profession given birth in its dedication of service to others.

Let's examine then, briefly, government's policy-making strategy regarding cost containment. Until recently, regulations have been the principal means — if not the only means — to reduce costly duplications of facilities, fragmentation of services, stabilized rates and improved levels of minimum standards. The regulatory tools have been Certificate of Need, Limits on Rate Setting and reimbursement, PSRO, and myriads of administrative rules and guidelines, notably including 10,000 pages of Medicare pronouncements. These have, in most instances, proved effective and, indeed, have often added significantly to the cost of health care. A study of hospitals in New York a couple of years ago revealed the cost of such regulation added almost \$40.00 to the daily bill for each patient. The situation with regulation which characterized the mid-70's has waned as the result of frustrating experience and changing moods of congress and the country. We now enter a pro-competition environment.

The prospects of "Competitive Strategy" as espoused by Dr. H. H. Hoven of Stanford University will likely gain increased acceptance in government circles. The continued growth of prepaid delivery systems, which now has some nine million subscribers, enhances the further development of competitive strategy. Although some physicians join such an organized system out of preference or commitment, others join out of economic threat. Regardless of one's personal views, the HMO movement is likely here to stay. One wit has described it as the Colonel Sanders of Medicine — it delivers an average product at a low price — a patient could do worse. The facts are that, where multiple-option plans are given the consumers, as in the federal employees health benefit program now in operation some 20 years, the most comprehensive plans remain the most popular, even with greater out-of-pocket payments by subscribers. In other words, most people do not abandon their family doctor and join an HMO because monthly premiums are 10 or 15 dollars lower. The danger to the fee-for-service practice lies not in the acceptance of the plurality of practice modes, but rather that the fee-for-service mode be excluded from the patient's option as the competition strategist would have it. The HMO movement has brought into positive focus the fact that

health-care costs can be lowered, primarily by means of lower hospital utilization. The fee-for-service practitioner can certainly learn from this and, when appropriate, alter his practice pattern to adapt to this cost-saving benefit. The market effect of HMOs as to direct impact on health costs nationwide remains inconclusive, both as to cost containment and quality of care. We, as physicians, can and should continue in our efforts, individually and collectively, to bring to the public's attention, to industry and governmental agencies, and to our hospitals our expertise in those matters affecting cost-of-care and quality-of-care. We can and should alter practice patterns, both as to hospital utilization and laboratory and special procedure utilization, when indicated and not in conflict with the dictates of quality of care. Let me clarify. We absolutely need laboratory tests and special procedures; they are essential to good patient care. What we need is to perfect the clinical skills that will permit the use of only the necessary tests in a proper-thinking sequence. We need to use our health-care dollars more effectively by curbing procedures that are unnecessary or inefficient and developing and identifying those that are best. Cost containment and quality of care are not incompatible goals. As someone has recently said, "Good medicine involves doing the right thing for the right patient. That kind of good medicine is cost effective."

I would share the view that the key to overuse is in the hands of the medical profession. The figure of 70 percent of all expenditures for personal health care is the result of decisions of doctors. I have long held the belief that the physician was his patient's best advocate. "With the consent of their patients, physicians act in their behalf, deciding which services are needed and which are not, in effect serving as trustees. It is the informed judgments of physicians, working in the interests of their patients, which offer the best regulation in the health-care market place. This obviously requires an element of discipline within the profession."

With this major emphasis on the cost of medical care, the practice of medicine is ever being pressed into becoming a business. We as a profession need to be wary of the



Past-President, John Clymer and President, Clyde Kurtz.



entrapment. For, in its business approach to health care, society has established most of the regulatory factors we find so onerous, all concerned with cost and more concerned with cost than care. Good medicine is competence and common sense. Its roots lie in scientific method, and its art in the intrapersonal application. The inappropriate glamorizing of the profession through media melodrama and advertising of unorthodox treatments all serve to prostitute it under the false guise of the art of medicine. All that is hypocrisy, well stated by one politician who characterized an opponent as like a dead fish on a river bank in the moonlight; how it glows - how it glitters - how it dazzles - and how it stinks.

The pressures for cost containment will, however, persist. Probably some combination and balance between these forces of regulation, competition, volunteerism and innovation will spell the course. Our actions will continue to be cautious, forward motion. With an informed leadership, a consensus, and individually-exercised conscience, we can avoid the chuckholes. We are concerned with costs, but our overriding concern must and should be to allay human suffering.

Before I move on, I would be remiss not to mention the latest effort by some of our state legislators to bring forth health legislation for the indigent under the guise of the Arizona cost containment health-care system. Their efforts suggest that they have taken unto themselves the Greyhound Company slogan: "Leave the driving to us." Fortunately, others besides ourselves were not too pleased with the bus ride. The driving in this case would be better served by enlightened and thoughtful input by all concerned forces involved. There is an ad hoc committee of your association now at work, delving into this problem; and I trust their deliberations will be fruitful and their counsel sought in any new legislative effort.

The citizens of Arizona will have to decide where the emphasis is to be put as it regards the care of those less fortunate. They cannot have it both ways. There will have to be a proper focus placed on just where and what the cost factors are, what our priorities are, as we talk about care and how best this care can be given at a reasonable cost. As a profession we will have to stand and be counted when we see a collision course approaching where cost or mode of delivery of service alter significantly the quality of care to be provided. I think the profession will find the current presented program of prepaid provider competition grouping as unacceptable and unworkable. That road I feel to be an economic illusion.

Through the farsightedness of your Past President, Dr. John Clymer, and the immediate efforts of the President-Elect Dr. John Oakley, and his committee on Long-Range Planning, some fifty physicians representing all sectors of practice and geographic distribution, met in February 1981 for a workshop to define some eight projected goals of the Association and to better prioritize the many objectives under these goals. The final product of those deliberations is being put in final form for the membership. The major thrust of this grass-roots effort, however, is to give your leadership the guidelines toward which it can place its emphasis and its resources. This committee will continue in its function to



**Tom Vorpahl of Coconino County and Dr. Kurtz at the Health Planning Conference.**

evaluate our progress in those directions. I will not go into further detail of these goals now, but high on the priority identified is the need to develop a sound financial structure for the Association. I would call your attention to the Association budget for 1982, which reflects your Finance Committee's effort to "cut fat." It allows for an estimated five percent surplus. A management review has been recommended and will be proposed in the coming year.

I will be meeting with your committee chairmen Friday morning at breakfast to bring them the challenges and renewed commitment to attain some of the goals identified by the Long Range Planning Committee.

More specifically, I think we can anticipate a readily-visible effort by the Public Relations Committee to develop appropriate materials regarding health issues for distribution to our patients and to develop a format for health forums for the public. The Medical Economics Committee will be expanding its role to develop programs on financial and estate planning for the membership. Its effort to develop in concert with the insurance industry, in-state statistics of the industrially injured will be accelerated. Your Scientific Assembly Committee has a resolution before you recommending replacement of our usual scientific format with a more diverse effort which can be more geographically oriented to need and which will respond more appropriately to more of the membership in the diffusion of scientific advancements. I heartily endorse this recommendation. I would hope to strengthen the abilities of the Legislative Professional and Health Manpower Committees as they struggle to develop policy papers for the Association by reallocating a portion of the funds now available to the Benevolent and Loan Fund Committee to be specifically utilized to develop research studies in specific areas of need. We need to take a position in regard to Certificate of Need, PSRO and Benevolence. Your Articles of Incorporation and Bylaws Committee will be asked to review our present organizational structure to determine its efficiency and effectiveness and to offer recommendations for change, appropriate.



Your Association will, with county society input and AMA counsel, make formal liaison with industry and other interested community groups as we work toward appropriate solutions to problems of cost containment. These are but a few of the areas of activity we are going to be involved with.

Before closing, I would share with you the recent action of the Board of Trustees of MICA, in which, in recognition of the value of our past and present support and sponsorship, they decided to give back to the supporting professional associations the amount of one percent of premium dollars. Having survived the malpractice crisis, in which doctors gave birth to their own malpractice carrier, and with its successful performance and guidance by our fellow physicians, it has been and will remain my view that it is in the best interest of the physician to support physician-run malpractice insurance carriers. They may not be the least expensive in immediate premium cost, but that cost reflects a realism of conditions that most of us will not soon forget. For many commercial carriers, only a small percent of their business is malpractice insurance and, if losses go up as has been occurring throughout the country, they can always leave the state. With our support, MICA will never do this.

Your finance committee and Board of Directors will ultimately decide the fate of these monies. It would be my hope that such funds would be placed in a reserve fund for the Association, that only the interest derived will be utilized for the Association's specific needs, and that, if such funds continue after a two-year period, they can then be utilized as they directly reflect a dues alteration. I would thank all of you who support MICA and, particularly, those of our members who have served on the Claim and Underwriting Review committees because it is due, in part, to your conscientious efforts that the risk factors for MICA have been properly identified to allow them a successful operation.

Now, in closing, I want to thank you again for the opportunity to serve. There is much work to be done. I urge your continued participation and I welcome your counsel in the coming year.

# The Arizona Medical Association, Inc. Resume

## of the House of Delegates 1981 Annual Meeting May 21, 1981

Adjourned meeting of the House of Delegates of the Arizona Medical Association, Inc., held in the Grande Ballroom of the Pointe Resort, Phoenix, Arizona, Thursday, May 21, 1981, convened at 8:05 A.M., Robert A. Price, M.D., Speaker of the House, presiding.

### Credentials

The Credentials Committee reported a quorum present and the House duly constituted.

### Roll Call

On the call 88 Delegates (and/or Alternates) and 25 members of the Board of Directors were present.

### Minutes

Minutes of the meeting of the House of Delegates held April 25, 1980 were approved as distributed.

### Election of Officers

The following officers were elected for a term of one year:

#### President-Elect

John E. Oakley, M.D.

#### Vice President

Neopito L. Robles, M.D.

#### Secretary

Earl J. Baker, M.D.

#### Treasurer

Clifford D. DeBenedetti, M.D.

#### Speaker of the House

Robert A. Price

#### Editor-In-Chief

Marshall B. Block, M.D.

The following were elected for the term January 1, 1982 to December 31, 1983.

#### Delegate to the AMA

Richard D. Zonis, M.D.

#### Delegate to the AMA

Edward Sattenspiel, M.D.

#### Alternate Delegate to the AMA

Bruce N. Curtis, M.D.

#### Alternate Delegate to the AMA

Franklin D. Loffer, M.D.

#### Election of District Directors

The following District Directors were elected:

#### Central District Director

Philip Levy, M.D. - (1981-1984)

#### Central District Director

Herbert M. Munhall, M.D. - (1981-1984)

#### Central District Director

Neil O. Ward, M.D. - (1981-1984)



Dr. and Mrs. Clyde Kurtz

**Northeastern District Director**

Daniel L. Neel, M.D. - (1981-1984)

**Southern District Director**

Orlin V. Wry, M.D. - (1981-1982)

**Southern District Director**

Louis J. Kettel, M.D. - (1981-1984)

**Reference Committee on Resolutions**

Report of the Reference Committee on Resolutions as deleted, amended or as otherwise disposed of, adopted with the following actions taken on motions regularly made and carried:

**Resolution 1-81****Subject: Joint Position Paper Re: "Care After Death"**

**Whereas,** There appears to be a need within the community for the establishment of a formal position on "Care After Death," and,

**Whereas,** The Arizona Medical Association has been requested to join with the Arizona Association of Homes for the Aged, the Arizona Association of Health Care Facilities and the Arizona Nurses Association in a Joint Position Paper on "Care After Death;" now, therefore, be it

**Resolved,** That it is the attending physician's final responsibility to the patient and the patient's family to make the final diagnosis of expiration. The physician will make the decision regarding acceptance of the nurse's assessment or coming in to pronounce the patient dead. Upon receipt of the registered nurse's assessment of patient's status, the following options are available to the physician:

1. May accept the Registered Nurse's assessment, by the following guidelines:

- A. Response to stimuli
- B. Respiration
- C. Blood pressure
- D. Pulse
- E. Apical heart sound
- F. Pupil response

G. Record time of assessment and physician notification.

2. May come and pronounce the patient dead.

3. May make arrangements for an alternate physician to come and pronounce the patient dead.

**Adopted As Amended, 5/21/81**

**Resolution 2-81****Subject: Interest Income Utilized For Medical Student Grants**

**Whereas,** In 1962 the House of Delegates authorized the Benevolent and Loan Fund Committee to disburse

|                   | Income                | Expenditures         |                     |
|-------------------|-----------------------|----------------------|---------------------|
| General Dept.     | \$ 833,610.00         | \$ 722,600.00        | \$ 111,010.00       |
| Committee Dept.   | 19,000.00             | 84,300.00            | (65,300.00)         |
| Annual Mtg. Dept. | 53,400.00             | 52,960.00            | 440.00              |
| Publishing Dept.  | 95,350.00             | 89,850.00            | 5,500.00            |
| <b>Total</b>      | <b>\$1,001,360.00</b> | <b>\$ 949,710.00</b> | <b>\$ 51,650.00</b> |

; and be it further

scholarship monies in the amount of \$500.00 to first year medical students, said monies being derived from interest on short-term investments of the Association; and

**Whereas,** In the early years of this program the Association had few monies in interest bearing accounts and the scholarships were few in number; and

**Whereas,** Beginning in 1980 the scholarship was raised to \$750.00; and

**Whereas,** By action of the House of Delegates in approving the budget, only \$6,000.00 was allowed to this fund; and

**Whereas,** The budget for 1981 only allocates the same



(L. to R.) Clifford D. DeBenedetti, M.D.; Neopito L. Rot, M.D.; Clyde W. Kurtz, M.D.; John E. Oakley, M.D. — Treasurer, Vice President, President and President-Elect

amounts of money; and

**Whereas,** The true interest derived from short-term investments earned by the Association amounted \$16,293.29 for the full 1980 fiscal year; therefore, be it

**Resolved,** That in the future the original intent of previous resolutions be carried out by allocation of the true earned interest from dues dollars to the Medical Student Grant Fund; and

**Resolved,** That grants in the amount of \$750.00 to a medical student can be continued; and

**Resolved,** That the recipients of such grants encouraged to return these grant funds to be utilized for future medical students.

**Adopted As Amended, 5/21/81**

**Resolution 3-81****Subject: 1982 Calendar Year Budget of Income and Expenditures**

**Whereas,** It is customary for the House of Delegates to approve the Budget of Income and Expenditures for the succeeding calendar year of the Arizona Medical Association, Inc.; therefore, be it

**Resolved,** That the following Budget of Income and Expenditures for the calendar year 1982 be adopted:

**Resolved,** That the annual dues of the Arizona Medical Association, Inc. be continued at \$300 for Active members, with \$280 going to General Department Budget and \$20 going to the Publishing Department Budget; and be it further

**Resolved,** That the Service member dues be continued at \$75, with \$55 going to the General Department Budget and \$20 going to the Publishing Department Budget; and be it further

**Resolved,** That the Intern or Resident Active member dues be continued at \$30 with \$10 going to the General Department and \$20 going to the Publishing Department Budget.

**Adopted, 5/21/81**



**Resolution 4-81**

**Subject: Interest Income and Medical Student Scholarships**  
**Not Adopted, 5/21/81**

**Resolution 5-81**

**Subject: Discontinuance Of Scientific Portion Of The Annual Meeting**

**Whereas,** There has been a steady decline in the attendance at the scientific portion of the annual meetings;

**Whereas,** The costs of conducting these scientific programs in the present format are escalating; therefore, be

**Resolved,** That we discontinue the present scientific program format effective with the 1982 meeting; and, be it further

**Resolved,** That the Scientific Assembly Committee be directed to develop alternative methods of providing medical education opportunities to the membership of the Association.

**Adopted As Amended, 5/21/81**

**Resolution 6-81**

**Subject: Radial Keratotomy In Arizona**

**Whereas,** The Arizona Ophthalmological Society, at its meeting of May 2, 1981, in Tucson, Arizona, by a unanimous vote of the members present, passed the following resolution:

**Resolved, that;**

1. The Arizona Ophthalmological Society (AOS), a group of physicians primarily concerned with eye care, expresses its concern about potential wide-spread adoption of an operation intended to correct nearsightedness, a common condition that can be easily and safely corrected by the use of eyeglasses or contact lenses.

2. The operation called Radial Keratotomy has received wide-spread publicity during the last two years. It involves flattening the cornea with a series of deep incisions that extend from the sclera toward, but not into, the center of the cornea. The incisions are intended to be deep enough so that internal eye pressure causes the edge of the cornea to bulge slightly, thereby flattening the central portion of the cornea which improves focusing. The incisions result in permanent scars.

3. The AOS considers Radial Keratotomy to be an 'experimental' procedure because it has not been subjected to adequate scientific evaluation in animals and humans.

4. The AOS endorses the conclusions of the National Keratotomy Workshop of March 15, 1980; and the National Advisory Eye Council (NAEC) Resolution approved May 29, 1980 concerning Radial Keratotomy.

5. The AOS urges restraint on the part of both Arizona ophthalmologists and patients regarding the procedure until results of research known as the Prospective Evaluation of Radial Keratotomy (PERK) study of the National Eye Institute (NEI) are obtained and fully evaluated.

6. The AOS urges that its views on the subject of Radial Keratotomy as expressed in this resolution be announced to the general public, other health care professionals, institutions, including institutional review committees, and third party insurers and payers in Arizona;" therefore, be it

**Resolved,** That the Arizona Medical Association endorses and supports the resolution of the Arizona Ophthalmological Society concerning the procedure known as Radial Keratotomy until the safety and efficacy of the procedure have been carefully demonstrated in controlled studies.

**Adopted As Amended, 5/21/81**

**Resolution 7-81**

**Subject: Direct Membership In The American Medical Association**

**Whereas,** The American Medical Association has been devoted to the defense of those conditions that support

quality in the practice of medicine and maintain the physician-patient relationship; and

**Whereas,** In order to strengthen and increase membership in the AMA, the physicians of this country should have direct access to membership on a national level; now, therefore, be it

**Resolved,** That the Arizona Medical Association goes on record in support of proposed AMA bylaws changes which will permit direct membership in AMA for all physicians.

**Adopted, 5/21/81**



**Richard T. McDonald, M.D., Phoenix, and John F. Kahle, M.D., Flagstaff at House of Delegates Session.**

**Reference Committee On Amendments**

Report of the Committee on Amendments as deleted, amended or as otherwise disposed of, adopted with the following actions taken on motions regularly made and carried:

**Resolution A-1-81**

**Subject: Articles Of Incorporation And Bylaws Committee - Standing Committee**

**Resolved,** That Chapter VII, Section 4, of the Bylaws of the Arizona Medical Association be amended by the inclusion of the following:

"(a) ARTICLES OF INCORPORATION AND BYLAWS: — THIS COMMITTEE SHALL CONSIST OF A CHAIRMAN AND AT LEAST NINE MEMBERS. ALL MEMBERS OF THIS COMMITTEE SHALL HAVE BEEN MEMBERS OF THE ASSOCIATION FOR AT LEAST FIVE YEARS PRIOR TO THEIR APPOINTMENT.

THIS COMMITTEE SHALL RESPOND TO RESOLUTIONS OF THE HOUSE OF DELEGATES BY REPORTING ITS DELIBERATIVE OPINION AND/OR PREPARING PROPOSED AMENDMENTS TO THE ARTICLES OF INCORPORATION AND BYLAWS. THE COMMITTEE SHALL RESPOND TO DIRECTIVES BY THE BOARD BY REPORTING ITS DELIBERATIVE OPINION AND/OR PREPARING PROPOSED AMENDMENTS. ALL PROPOSED AMENDMENTS PREPARED IN RESPONSE TO HOUSE OR BOARD DIRECTIVES SHALL BE PRESENTED TO THE BOARD FOR ITS CONSIDERATION.

THIS COMMITTEE MAY (CHAPTER X, SECTION 1) PROPOSE AMENDMENTS FOR INTRODUCTION TO THE HOUSE OF DELEGATES."

**Adopted, 5/21/81**

**Resolution A-2-81**

**Subject: House of Delegates - Specialty Society Representation**

**Resolved,** That the Bylaws of the Arizona Medical Association, Inc. be amended as follows:





Richard Zonis, M.D. and Rudolf Kirschner, M.D. at the Reference Committee meeting. In the background are medical students Diane Horning and Leslie Daniels, and ArMA Staff, Mary-Ann Post.

### **"Chapter VIII House of Delegates**

"Section 1. Composition of House; Meetings: — The House shall constitute the voting body of the Association and shall be composed of the elected Delegates of the county societies, ELECTED DELEGATES OF THE SPECIALTY SOCIETIES, elected Delegates of each duly constituted chapter of the American Medical Student Association in Arizona, elected Delegates of the duly constituted chapter of the Arizona Medical Association Housestaff Section, and members of the Board. Delegates who are thereafter elected as officers do not by such election lose their status as voting Delegates in the House. The past presidents of the Association shall be ex-officio members of the House of Delegates without the right to vote.

"The House shall meet at least once a year at the time of the Annual Meeting. In addition, special meetings of the House may be held at any time, upon at least six weeks' notice thereof to the Delegates, at the call of the Board, or upon the call of twenty Delegates (*representing at least eight*) WITH DELEGATES REPRESENTATION FROM AT LEAST SEVEN county societies.

"Section 2. Number of Delegates: —

"(A) COUNTY SOCIETIES. Each county society shall be entitled to representation in the House by two Delegates, or their alternates, for the first twenty active members or fraction thereof, and one additional Delegates for each additional twenty active members or major fraction thereof, as determined on October first preceding the Annual Meeting.

"(B) SPECIALTY SOCIETIES. A STATE SPECIALTY SOCIETY SHALL BE ENTITLED TO REPRESENTATION IN THE HOUSE OF DELEGATES BY ONE DELEGATE AND ALTERNATE WHO SHALL BE MEMBERS OF THE ASSOCIATION IF (a) THE SPECIALTY HAS A NATIONAL BOARD RECOGNIZED AS A PRIMARY BOARD BY THE AMERICAN BOARD OF MEDICAL SPECIALTIES, AND (b) A MINIMUM OF TWENTY MEMBERS PRACTICING IN ARIZONA. THE MAJORITY OF WHOM MUST BE MEMBERS OF THE ASSOCIATION AND (c) THE ACTIVITY OF THE SPECIALTY SOCIETY IS MANIFESTED BY AN EXISTING ORGANIZATION OR STRUCTURE EXHIBITING A SLATE OF PERIODICALLY ELECTED OFFICERS, AN

ESTABLISHED CONSTITUTION AND BYLAWS, AN FREQUENCY OF MEETING AT LEAST ONCE A YEAR. THERE IS MORE THAN ONE QUALIFYING SOCIETY. A SPECIALTY, THE BOARD SHALL DETERMINE REPRESENTATIVE SOCIETY. A SPECIALTY SOCIETY SHALL HAVE AN ADDITIONAL DELEGATE AND ALTERNATE FOR EACH ADDITIONAL 150 MEMBERS OF THE SOCIETY WHO ARE MEMBERS OF THE ASSOCIATION, AS DETERMINED OCTOBER FIRST PRECEDING THE ANNUAL MEETING.

"(C) HOUSESTAFF SECTION: STUDENT ASSOCIATION. Each duly constituted chapter of the Arizona Medical Association Housestaff Section and each duly constituted chapter of the American Medical Student Association in Arizona shall each be entitled to representation in the House by two Delegates or their Alternates.

"Section 3. Election of Delegates; List Thereof. Sufficiently in advance of the Annual Meeting each county society, EACH SPECIALTY SOCIETY, The Arizona Medical Association Housestaff Section, and each duly constituted chapter of the American Medical Student Association in Arizona shall elect Delegates and an equal number of Alternates to represent it in the House. In the absence of a Delegate, (*his*) THE alternate may vote in (*his*) THE DELEGATE'S name on any question before the House. The alternate shall be eligible for election to office, but (*he*) shall not be appointed to membership on House committees in the absence of the Delegate. The secretary of each county society, EACH SPECIALTY SOCIETY, (*and of*) the Arizona Medical Association Housestaff Section and each chapter of the American Medical Student Association shall send the list of such elected Delegates and alternates to the Secretary of the Association not later than two months before the Annual Meeting. Representation in the House shall be contingent upon compliance with this provision. A member to be seated must present evidence at the time of (*his*) appearance at the house (,) of (*his*) official election by (*his*) THE county society, SPECIALTY SOCIETY, (*or*) the Arizona Medical Association Housestaff Section, or chapter of the American Medical Student Association.

"Section 7. Quorum; Minimum Requirements for Vote. (*Fifteen*) TWENTY Delegates, or their alternates (*representing*) WITH REPRESENTATION FROM seven county societies shall constitute a quorum, and unless otherwise specified herein, a majority vote of the quorum shall be required for action."

**Adopted As Amended, 5/21/81**



Pinaleño Delegation - House of Delegates. L. to R. Ross Magee, Lee Shultz, and Tony Forte.



#### Resolution A-3-81

##### Subject: Physician Rehabilitation Committee - Change of

**Resolved,** That Chapter VII, Section 4 (n), of the Bylaws of the Arizona Medical Association be amended as follows:

(n) *Physician Rehabilitation*) PHYSICIAN'S HEALTH: — The committee shall consist of the Chairman and at least three members with due consideration to geographic distribution and specialty representation.

The committee shall be for the purpose of assisting physicians who have physical or emotional problems which may be affecting or impairing their proficiency in the practice and the quality of their medical or surgical activities. The committee shall deal with each case and follow-up as appropriate."

**Adopted, 5/21/81**

#### Resolution A-4-81

##### Subject: Repeal of Duplicate Reporting of Continuing Medical Education

**Whereas,** In 1971, when the House of Delegates of the Arizona Medical Association established required reporting of continuing medical education activities as a condition of active membership in the Association, there was no other continuing medical education requirements for members;

**Whereas,** In 1976, the Medical Practice Act was expanded to provide for mandatory reporting of continuing medical education as a requirement for initial and continued license to practice medicine in Arizona; and

**Whereas,** This has resulted in a dual requirement for members of the Arizona Medical Association, causing some confusion and duplication of effort on the part of physicians;

**Whereas,** Arizona is one of only five states requiring reporting of continuing medical education for both licensure and state association membership; and

**Whereas,** The House of Delegates of the American Medical Association in July, 1980, adopted a resolution requesting support of a moratorium on all additional mandatory continuing medical education pending evidence of its effectiveness in upgrading the competence of physicians;

**Whereas,** At least three other states have repealed the continuing medical education requirement in the past year; therefore be it

**Resolved,** That the mandatory reporting of continuing medical education as a requirement for membership in the Arizona Medical Association be repealed and all reference to the requirement be stricken from the Bylaws of this Association as follows:

**Resolved,** That Chapter II - Membership - Section 3. Losses of Membership: - (A) Active Members - be amended to read:

Active members of all the county societies shall be active members of this Association. The minimum qualifications for active membership (other than for interns and residents) in a county society shall be that the individual must (1) hold a degree of doctor of medicine or its equivalent or doctor of osteopathy, (2) be an American citizen, or have made application for American Citizenship papers (in which case, must make reasonable progress toward full citizenship or membership shall lapse), (3) hold an unrevoked license to practice medicine and surgery or osteopathic medicine and surgery in the State of Arizona, (4) be a legal resident of the State of Arizona. ((5) fulfill the continuing medical education requirements of the Arizona Medical Association.) Subject to these minimum qualifications and the provisions for loss of membership (Chapter II, Section 3. Each county society shall be the exclusive judge of the



**Bruce N. Curtis, M.D. of Safford, and Mark J. Ivey, Jr., M.D. of Payson at House of Delegates Session.**

qualifications of its members.

Interns and residents who are licensed or registered with the Board of Medical Examiners, State of Arizona, are eligible for active membership in a county society. These members shall constitute the membership of the Arizona Medical Association Housestaff Section.

**Rights.** An active member shall have all the rights and privileges of the Association as herein provided. Intern and resident active members shall pay no dues for the calendar year in which they first become a member and, thereafter, shall pay ten per cent the dues of other active members and will be exempted from special assessments; and be it further **Resolved,** That Chapter II - Membership - Section 4 Loss of Membership (A) and (B) be amended to read:

(A) Active, Associate or Fifty-Year Club membership in this Association shall be lost by:

(i) Final expulsion from the county society through which he is an active member of the Association.

(ii) Transfer of membership to a county society of another state, and thereby to another state association, except as provided in Chapter III, Section 3.

(iii) Voluntary resignation, which shall be without prejudice.

(iv) Action of the House of Delegates (see Chapter VI, Section 6; Chapter VIII, Section 9).

(v) Revocation of the member's license to practice in Arizona. This latter clause shall effect immediate loss of membership as of the date of revocation.

(vi) Termination of Board of Medical Examiners registration of intern or resident active member. This latter clause shall take effect at the end of the calendar year.

(vii) Failure to pay Association dues and assessments within one year of the date such become payable, unless such failure be exempted under Chapter IX, Section 5.

(viii) *For active membership, failure to fulfill the continuing medical education requirements of the Arizona Medical Association elsewhere in the bylaws.)*

(B) Active, Associate or Fifty-Year Club membership in this Association shall be suspended by:

(i) Suspension of membership in the county society through which he is an active member of this Association.

(ii) Action of the Board (see Chapter VI, Section 6).

(iii) Failure to pay the annual dues and assessments before the delinquency date.

(iv) *For active membership, failure to submit satisfactory reports showing compliance with the continuing medical education requirements of the Arizona Medical Association.)*





**Will Perry, M.D., Family Practice Resident, Scottsdale Memorial Hospital, Acting Chairman of ArMA's Housestaff Section.**

All of the rights and privileges of membership shall be withheld during the period of suspension of membership; and be it further

**Resolved,** That Chapter VII - Standing and Special Committees - Section 4. Composition and Duties of Standing Committees: (I) Medical Education be amended to read:

(1) Medical Education: - This committee shall consist of a Chairman and at least eight members, appointed with due consideration for the specialties, family practice and geographic distribution of physicians, an ex-officio member of the committee shall be a faculty member of the College of Medicine of the University of Arizona, and should be appointed annually from among the members who have served for at least two years on this committee or its predecessor committee. The committee shall represent the Association on all questions relating to medical education, at all levels, and the College of Medicine of the University of Arizona. *(And recommend for certification to the Board of Directors those members who have completed the medical education requirements for continuing membership as set forth in Chapter II, Section 3 (A), (5).)*

**Referred to the Board of Directors  
For Implementation, 5/21/81**

#### **Resolution A-5-81**

**Subject: Student Membership - Medical Student Section**

**Resolved,** That the Arizona Medical Association make the following amendments to its bylaws:

#### **CHAPTER II - Membership**

**Section 3. Classes of Membership: - (A) Active Members, be amended to read:**

All active members of all the county societies shall be active members of this Association. The minimum qualifications for active membership (other than for interns, residents AND MEDICAL STUDENTS) in a county society shall be that the individual must (1) hold the degree of doctor of medicine or its equivalent or doctor of osteopathy, (2) be an American citizen, or have made application for American Citizenship papers (in which case, he must make reasonable

progress toward full citizenship or his membership shall lapse), (3) hold an unrevoked license to practice medicine and surgery or osteopathic medicine and surgery in the State of Arizona, (4) be a legal resident of the State of Arizona, (5) fulfill the continuing medical education requirements of the Arizona Medical Association. Subject to these minimum qualification and to the provisions for loss of membership (Chapter II, Section 4), each county society shall be the exclusive judge of the qualifications of its members.

Interns and residents who are licensed or registered with the Board of Medical Examiners, State of Arizona, shall be eligible for active membership in a county society. These members shall constitute the membership of the Arizona Medical Association Housestaff Section.

**FULL-TIME STUDENTS WHO ARE PURSUING A FULL-TIME COURSE OF STUDY LEADING TO THE DEGREE OF DOCTOR OF MEDICINE OR OSTEOPATHY IN AN ACCREDITED SCHOOL OF MEDICINE OR OSTEOPATHY LOCATED IN ARIZONA SHALL BE ELIGIBLE FOR ACTIVE MEMBERSHIP THROUGH THEIR LOCAL COUNTY MEDICAL SOCIETY. THESE MEMBERS SHALL CONSTITUTE THE MEMBERSHIP OF THE ARIZONA MEDICAL ASSOCIATION MEDICAL STUDENT SECTION.**

**Rights.** An active member shall have all the rights and privileges of the Association as herein provided. Interns and resident active members shall pay no dues for the calendar year in which they first become a member and thereafter, shall pay ten per cent the dues of other active members and will be exempted from special assessments. **STUDENT MEMBERS SHALL PAY SUCH DUES AS MAY BE DETERMINED BY THE HOUSE OF DELEGATES. THEY SHALL BE EXEMPTED FROM SPECIAL ASSESSMENT.** **Section 3: Classes of Membership: - (G) Student Members shall be deleted as follows:**

*(Members of duly constituted chapters of the American Medical Student Association in Arizona may be elected as student members by the Board of Directors upon written recommendation of their respective chapter. The student members shall be enrolled in an accredited school pursuing a course of study leading to the degree of Doctor of Medicine or Doctor of Osteopathy.)*



**Pete Robles talks with medical students Diane Horning and Leslie Daniels during a break in the Reference Committee Meeting.**



course of study leading to a Doctor of Medicine degree.)  
Rights. Student members shall have all the rights and privileges of associate members and, in addition, shall have the right to serve as delegates as set forth in Chapter VIII.)  
Section 4. Loss of Membership: - Sections (A) and (C), be amended to read:

(A) Active, Associate or Fifty-Year Club membership in this Association shall be lost by:

(i) Final expulsion OF A MEMBER from the county society through which he is an active member of the Association.

(ii) Transfer of membership to a county society of another state, and thereby to another state association, except as provided in Chapter III, Section 3.

(iii) Voluntary resignation, which shall be without prejudice.

(iv) Action of the House of Delegates (see Chapter VI, Section 6; Chapter VIII, Section 9).

(v) Revocation of the member's license to practice in Arizona. This latter clause shall effect immediate loss of membership as of the date of revocation.

(vi) Termination of Board of Medical Examiners registration of intern or resident active member. This latter clause shall take effect at the end of the calendar year.

(vii) TERMINATION OF ENROLLMENT IN MEDICAL SCHOOL OF STUDENT ACTIVE MEMBERS.

(viii) Failure to pay Association dues and assessments within one year of the date such become payable, unless such failure be exempted under Chapter IX, Section 5.

(ix) For active membership, failure to fulfill the continuing medical education requirements of the Arizona Medical Association elsewhere in the bylaws.

(C) Service, honorary, (*student*), and affiliate membership in this Association may be withdrawn upon a majority vote of the House after recommendation of the Board.

#### CHAPTER VIII - House of Delegates

Section 1. Composition of House; Meetings: - be amended to read:

The House shall constitute the voting body of the Association and shall be composed of the elected Delegates of the county societies, elected delegates of (*each*) THE duly constituted chapter of the (*American Medical Student Association in Arizona*) ARIZONA MEDICAL ASSOCIATION MEDICAL STUDENT SECTION, elected delegates of the duly constituted chapter of the Arizona Medical Association Housestaff Section, and the members of the Board. Delegates who are thereafter elected as officers do not by such election lose their status as voting Delegates in the House. The past presidents of the Association shall be ex-officio members of the House of Delegates without the right to vote.

The House shall meet at least once a year at the time of the Annual Meeting. In addition, special meetings of the House may be held at any time, upon at least six weeks notice hereof to the Delegates, at the call of the Board, or upon the call of twenty Delegates representing at least eight county societies.

Section 2. Number of Delegates: - be amended to read:

Each county society shall be entitled to representation in the House by two Delegates, or their alternates, for the first twenty active members or fraction thereof, and one additional Delegate for each additional twenty active members or major fraction thereof, as determined on October first preceding the Annual Meeting.

Each duly constituted chapter of the Arizona Medical Association Housestaff Section and each duly constituted chapter of the *American Medical Student Association in Arizona*) ARIZONA MEDICAL ASSOCIATION MEDICAL STUDENT SECTION shall each be entitled to representation



Reference Committee on Resolutions in session.

in the House by two Delegates or their alternates.

Section 3. Election of Delegates; List Thereof: - be amended to read:

Sufficiently in advance of the Annual Meeting each county society, The Arizona Medical Association Housestaff Section, (*and each duly constituted chapter of the American Medical Student Association in Arizona*) AND THE ARIZONA MEDICAL ASSOCIATION MEDICAL STUDENT SECTION shall elect Delegates and an equal number of alternates to represent it in the House. In the absence of any Delegate, his alternate may vote in his name on any question before the House. No alternate shall be eligible for election to office, but he may be appointed to membership on House committees in the absence of the Delegate. The secretary of each county society and of the Arizona Medical Association Housestaff Section (*and each chapter of the American Medical Student Association*) AND THE ARIZONA MEDICAL ASSOCIATION MEDICAL STUDENT SECTION shall send the list of such elected Delegates and alternates to the Secretary of the Association not later than two months before the Annual Meeting. Representation in the House shall be contingent upon compliance with this provision. A member to be seated must present evidence at the time of his appearance at the House, of his official election by his county society or the Arizona Medical Association Housestaff Section, or (*chapter of the American Medical Student Association*) THE ARIZONA MEDICAL ASSOCIATION MEDICAL STUDENT SECTION.

#### Chapter IX - Dues and Assessments

Section 5. Exemptions: - (a), be amended to read:

(a) Members exempt from the payment of dues shall include (1) 50 year club, (2) Associate Members, (3) Affiliate Members, (4) Honorary Members. (*and Student Members.*) Members 70 years of age or older, and other members by reason of physical disability, illness or financial hardship may also be exempted. A member must request such exemption, and secure recommendation by his county medical society and be approved therefor by the Board.

**Referred to the Board of Directors  
Requesting Report Back to the House  
of Delegates at the 1982 Annual Meeting, 5/21/81**

#### Resolution A-6-81

**Subject: Unified Membership between the County Medical Societies and the Arizona Medical Association.**

**Not Adopted, 5/21/81**

#### Resolution A-7-81

**Subject: Intern and Resident Dues/Student Member Dues**

**Whereas, When Resolution 2-80 (the 1981 budget) was adopted by the House of Delegates on April 25, 1980, it**



contained a dues waiver for interns and residents; and **Whereas,** The proper procedure for amending the bylaws to accomplish this could not be followed; therefore, be it **Resolved,** That Chapter II, Section 3 (A) Active Members, subsection ( ) *Rights* be amended to read as follows: "Rights. An active member shall have all the rights and privileges of the Association as herein provided. Intern and Resident active members SHALL PAY NO DUES FOR THE FULL CALENDAR YEAR IN WHICH THEY FIRST BECOME A MEMBER AND, THEREAFTER, shall pay ten percent the dues of other active members and will be exempted from special assessments;" and

**Whereas,** In the process of revising Chapter IX, Section 5. Exemptions, to bring it into conformity with the foregoing amendment, it was determined that student members had inadvertently been omitted from subsections (a) and (b) of Section 5, Chapter IX; therefore, be it

**Resolved,** That Chapter IX, Section 5. Exemptions, subsections (a) and (b) amended to read as follows:

"(a) Members exempt from the payment of dues shall include (1) 50-year club, (2) Associate Members, (3) Affiliate Members, (and) (4) Honorary Members. AND (5) STUDENT MEMBERS. Members 70 years of age or older, and other members by reason of physical disability, illness or financial hardship may also be exempted. A member must request such exemption, and secure recommendation by his county medical society and be approved therefor by the Board.

(b) Members exempt from the payment of special assessments include (1) 50 year club, (2) Associate Members, (3) Affiliate Members (and) (4) Honorary Members, (5) INTERN AND RESIDENT ACTIVE MEMBERS, AND (6) STUDENT MEMBERS. Members 70 years of age or older, and other members by reason of physical disability, illness, or financial hardship may also be exempted. A member must request such exemption, and be approved therefor by the Board."

**Adopted, 5/21/81**

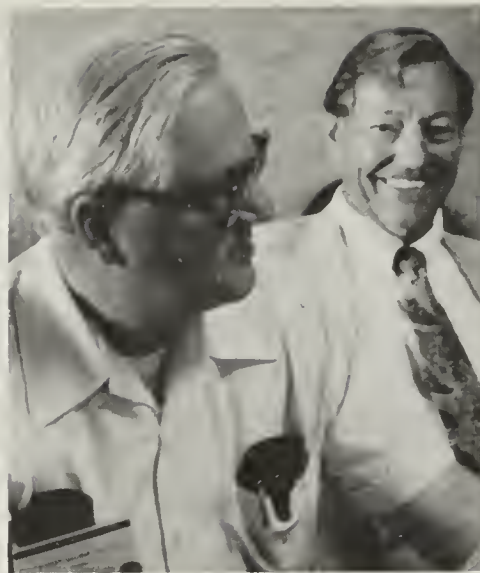
Meeting adjourned Sine Die at 9:54 a.m.

**Earl J. Baker, M.D.**  
**Secretary**

(Note: All bracketed, italicized words represent deletions; all fully capitalized words are new material.)



Seminar on Health Planning, Dr. Jim Sarn, Head of the Department of Health Services, Earl Baker, and Lou Kossuth



W. Scott Chisholm and Bill Scott (R.) panelists for Health Planning Seminar



(L. to R.) Joseph S. Whaley, M.D., Morton Fuchs, M.D. and Arthur V. Dudley, M.D.



(L. to R.) Walter Brazie, M.D, Robert A. Price, M.D., and Robert W. Brazie, M.D.





(to R.) Drs. Clyde Kurtz, William Payne, John J. Standifer, John Green, Harry S. Beckwith.



Walter K. Sosey, M.D., Mohave County (L.) and Paul T. Canino, M.D., Cochise County (R.)



Robert T. Abt, M.D., Prescott and Ronald S. Gardner, M.D., Prescott



Dr. and Mrs. Christopher Maloney, Tucson



James F. Martin, M.D., Yuma and Richard T. McDonald, M.D., Flagstaff.



Robert C. Cannell, M.D., Yuma (L.) and Frank Herrera, M.D., Yuma (R.)

# ArMA Auxiliary Workshops

## Did You Get The Message?

"Facets of Communication" was the theme of seven workshops sponsored by the Arizona Medical Association Auxiliary during its 51st annual convention, held in conjunction with ArMA's 90th annual meeting.

Webster says that the word, communicate, means to impart, to give, to share, to participate. Communications specialists go beyond this and describe communication as the exchange of ideas, thoughts, and feelings as opposed to talk, which is for the most part, just noise.

Recognizing that the way words are used — or misused — can alter personal and professional relationships; eleven guest speakers provided workshop participants with guidelines for more effective talking and listening at home, at work, and in the world at large.

Space does not permit a summary of the complete program, but highlights from four of the programs follow:

### **Communication in Marriage**

**Charles M. Kerr, M.D., Tucson psychiatrist**

Dr. Kerr believes that real communication can start if couples will sit down and talk "eyeball to eyeball" twice a week, tolerating no interruptions from children or telephone. One person should talk for seven and one-half minutes by the clock while the other listens. Then the process is reversed. And "when you talk", says Dr. Kerr, "use the pronoun *I* to describe your feelings instead of *you*. It is less accusatory."

Other suggestions are: Express what you feel rather than what you think. Be willing to be "first" — first to apologize, to explain, to begin the communication process. Listen and try to look beyond the words to what your partner is saying. And, finally, treat each other with dignity and respect.

Four barriers to good communication, according to Dr. Kerr are:

1. Insufficient self-esteem.
2. Differences in perceptions and failure to recognize those differences or to accept partner's perceptions as real.
3. Underestimating the continued influence of negative ideas and attitudes from childhood.
4. Persistence of ancient ideas that sexual, marital, and mental health "just come naturally" without learning, work, thought, or effort.

Kerr says, "Good marriages aren't made in heaven. They have to be worked at."

### **Sudden Death of Your Physician Spouse — Now What?**

**Richard Abbuhl, M.D., J.D. and Celia Halas, Ph.D., psychologist, Phoenix**

Death is stressful to contemplate, and planning for it may be an extremely emotional endeavor. But those who do not plan ahead may leave behind a bereaved and bewildered spouse who is unprepared for the many legal, financial, and emotional problems which all too often accompany death.

To help Arizona physicians anticipate the needs of their survivors in dealing with the innumerable details involved in settling an estate, Dr. Abbuhl elaborated on a pamphlet developed by the Auxiliary from a publication originally prepared by the California Medical Association.

The pamphlet includes a survivor's check list and detailed



**Toni Stuart and Jeanne Davis — ArMA Auxiliary Convention Co-Chairmen**



**Marty Squire (L.) Mort Enright (R.) answering a question**  
**Persuasive Communication**

information about taxes and probate, problems relating the sale of a medical practice, disposal of narcotics, office coverage, personal and medical records, and sample forms for communication with social security and other governmental agencies.

The ArMA Auxiliary has made this valuable pamphlet available to its members and their spouses. Contact ArMA and ask for your copy today.

### **Patient Communication**

**Mortimer T. Enright, Director of the AMA Speakers and Leadership Program**

**Marty T. Enright, Communications Specialists, Phoenix**  
**Stephen N. Shanfield, M.D., Tucson psychiatrist**

The panel rated physicians as generally effective in their overall efforts to build a trusting relationship with their patients. But doctors were advised to cultivate their listening skills to improve communications.

"If patients stop coming or turn to quackery, then it's a good sign that the doctor is not communicating well," according to Dr. Shanfield. The pressure of time, "difficult" patients, or a high level of anxiety are among the most common barriers to effective communication.





Attentive audience at the "Speaking Effectively II" Workshop



John Young, Mohave County, and Connie Wry at the "Speaking Effectively" Workshop



"Persuasive Communication and Listening Skills" Workshop



"Patient Communication" Workshop

For better communication, physicians were advised to:

1. Let the patient "speak out" about his problem without interrupting too soon. Show that you are listening to what he is saying by making such comments as "I hear you," "I understand," "and then what."
2. Take your time when responding to patients. Speaking too quickly or too technically gives the patient too little time to process what is being said.
3. Always give the patient an explanation of what is going to happen before you leave the examining room.
4. Recognize the patient's anxiety as related to the terror that is connected with illness. Suggest ways to deal with it.
5. Try to schedule appointments better. When patients have to wait long past the time for their appointments, they view the delay as a lack of concern on the part of the physician. If you are going to be late, have your staff warn the patients and/or explain why.

#### **"Persuasive Communication and Listening Skills"** **Portimer T. Enright, Marty Squire.**

Both Enright and Squire advise that the message you give should be "simple, sensible, and, when possible, painless. When you talk to someone, the less they hear, the more they

will remember."

The average person's span of attention is four to six seconds . . . fifteen seconds, if you're lucky. So tell your listener what you want him to listen for.

In this seminar, the use of "I" was again emphasized, especially when talking about another person's behavior. It is less inflammatory to say, "I feel lonely when you leave me alone at parties" than to say, "Why do you have to be a flirt?"

Communication skills can be improved. But, like golf or tennis or any other accomplishment, it takes practice and patience. To improve your listen-ability, try this exercise: Call the Weather Service and listen to their recorded forecast one time only. Hang up. Write down everything you remember. Then call back to determine how much of the message you actually heard.

But don't be discouraged. Becoming a better communicator is worth the time and trouble it takes. People who speak and listen well are in short supply. Perhaps that is why so many people "rent" communicators from among such professional listeners as psychiatrists, counselors, and the like.



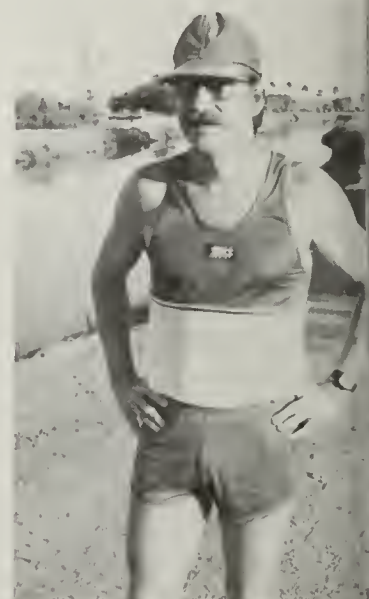
County Auxiliary Representatives with Mary Ellen Vaughan (3rd from right), AMA Auxiliary President.



"Changing of the Guard" — ArMA Auxiliary Past President Mrs. L. D. (Joyce) Newman (L.) and President, Mrs. Geo. T. (Janet) Hoffmann (R).



On their mark for the "Six Mile Fun Run"



Charles M. Kerr, M.D. a winner in "Six Mile Fun Run"



Dr. Dave Newman displays beaded moccasin boots which won a ribbon at the Arts & Crafts Show



Jeanne Weiland, ArMA Auxiliary AMA-ERF Chairperson presents Louis Kettel, Dean U. of A. College of Medicine with the Auxiliary's annual contribution.



## ArMA Convention - Awards

One of the highlights of the 90th Annual Meeting of the Arizona Medical Association was the presentation of awards. ArMA President, Clyde W. Kurtz, M.D., during the Presidential Banquet on Saturday, May 23.

Following his welcome to association members and guests, Dr. Kurtz bestowed the following awards:

**The A. H. Robins Community Service Award** - Mesa gynecologist, John K. Kerr, M.D., received this coveted award for his 26 years of dedicated service to the community and contribution to society. In addition to his efforts to improve his own community, Dr. Kerr has also given many hours of service on hospital, county and specialty society, and state medical association committees.

**The Arizona Medical Association Special Award of Appreciation** - Robert E. T. Stark, M.D., of Phoenix received this award for his outstanding service to the medical profession as chairman of the Medical Education Committee of the Arizona Medical Association for over ten years.

**1981 Outstanding Scientific Exhibit Award** - Michael H. Wyter, M.D., Phoenix cardiologist, received this award for his exhibit, "Percutaneous Transluminal Angioplasty of Coronary and Peripheral Arteries."

**Fifty Year Club** - Physicians who have practiced medicine or surgery for fifty years or longer, at least half of that time in the state of Arizona, are eligible for membership in ArMA's Fifty Year club. Elevated to membership in 1981 were: Richard H. Duisberg, M.D., psychiatrist, Phoenix, 1931 graduate of Cremona Medical College and Association member since 1935; Bernard Frazin, M.D., psychiatrist, Phoenix, 1931 graduate of the University of Illinois College of Medicine and Association member since 1935; Clarence C. Piepergerdes, M.D., otorhinolaryngologist, Phoenix, 1935 graduate of the University of Iowa College of Medicine and Association member since 1935; Norman A. Ross, M.D., general surgeon, Phoenix, 1928 graduate of the University of Iowa-University of Illinois Colleges of Medicine and Association member

since 1929; and Lowell C. Wormley, family practitioner, Phoenix, 1931 graduate of Howard University and Association member since 1946.

**Past President's Award** - John T. Clymer, M.D., 1980-81 ArMA President, received this award in recognition of his service to the community and to the medical profession.

**Exhibit Attendance Prize** - William Seldeen, M.D., Association member from Sun City, won the one ounce pure gold Krugerrand, valued at \$535 as of May 1, 1981.

**AMA-ERF Presentaion** - An unrestricted grant totaling \$11,500 was presented to the University of Arizona College of Medicine by the Arizona Medical Association Auxiliary's Education and Research Foundation. Mrs. Dennis (Jeanne) Weiland presented the check to Dean, Louis J. Kettel of the College of Medicine.

### Sports Awards

**Six-Mile Fun Run:** Charles K. Kerr, M.D. and Barbara (Mrs. Stuart) Holtzman

**Tennis Tournament:** Men's B Doubles - 1st Place - Avi-Ben Ora, M.D. and Walter H. Magen, M.D.

**A Mixed Doubles:** Bill and Joyce Bohnert

**C Mixed Doubles:** 1st Place - C. Joseph and Muriel Freund

**Golf Tournament:** Marvin C. Schneider, M.D. won the traveling golf trophy. Other winners are:

1st Low Gross - Robert L. Hagan, M.D.

1st Low Net - Steve Horrell

Closest to the Pin - Orlin V. Wry, Jr., M.D.

Closest to the Hole - Robert A. Price, M.D.

Longest Drive - Thomas I. Crawford, M.D.

Longest Putt - Charles P. Fina, M.D.

**1981 Creative Moments:** Best of Show honors were shared by Jay Epstein, M.D., for a needlepoint rug, and Barbara (Mrs. Lewis) Brown, black and white photography art work. A Kachina crewel wall hanging by Mrs. Earl Gilbert was voted "most popular."



& Mrs. John Kerr and Mr. & Mrs. Joe DiFrancesco, A. H. Robins Co. representative.



50 Year Club Members — Dr. Wormley, Dr. Piepergerdes and Dr. Duisberg



Dr. & Mrs. MacDonald Wood at the International Affair



Dr. & Mrs. Suresh C. Anand, M



Past President's Luncheon — (L. to R.) John Standifer, Arthur Dudley, Harry Thompson, Arnold Dysterheft, John Clymer, and Carlos Craig



Dr. & Mrs. John Clymer and Dr. & Mrs. Clyde Kur



Earl Baker and Dr. & Mrs. Stuart (Barbara) Holtzman



Dr. & Mrs. Maurice Zee of Tucson and Dr. & Mrs. Pete Robl of Tucson at the President's Banquet.





President's Luncheon — (L. to R.) Clarence Yount, Robert Carpenter, W. Albert Brewer, and Dermont W. Melick



& Mrs. Robert Anderson, Tucson and Dr. & Mrs. Lloyd Stein, Tucson,



& Mrs. Stephen M. Schumack of Yuma (L.) and Sylvia & Ralph Linden of AMA (R.)



Luis & Mary Jo Tan (L.) and Trudie and Suresh Anand (R.) at President's Banquet



Past President's Luncheon — (L. to R.) William Scott, Edward Sattenspiel, Richard O. Flynn, William Crisp and William Payne



The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

## AD HOC LONG RANGE PLANNING COMMITTEE

The meeting of the Ad Hoc Long Range Planning Committee of the Arizona Medical Association held at 810 West Bethany Home Road, Phoenix, Arizona, on Tuesday, April 21, 1981, convened at 6:14 p.m., John E. Oakley, M.D., Chairman, presiding.

### Refinement of Goals and Objectives

The committee reviewed and discussed at great length the various goals and objectives which had been developed during the February 28, 1981 Long Range Planning Workshop.

The committee noted many duplications of objectives, as well as numerous objectives on which the Association was already working toward achieving. The committee requested that staff prepare (a) a list of goals established by the February 28th workshop and (b) a list of consolidated objectives, eliminating duplications, designating those on which work was already in process, assigning specific objectives to the most obvious of ArMA's committees for handling, and setting time frames for accomplishment of each objective.

## SCIENTIFIC ASSEMBLY COMMITTEE

The meeting of the Scientific Assembly Committee of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Saturday, May 2, 1981, convened at 2:08 p.m., Suresh C. Anand, M.D., presiding.

### Charge to Committee

Copy of Chapter VII, Section 4(r) of the Bylaws of the Association *Received*.

### Preregistration Comparison Report

1980 and 1981 Preregistration Comparison Report, together with 1981 Promotion Schedule *Received*.

In reviewing the promotion schedule, the suggestion was made that posters regarding the 1981 Annual Convention

be made and distributed to the hospitals throughout Arizona with the request that they be posted in areas frequented by physician staff members.

### New Format Suggestions

Dr. Kurtz addressed the committee regarding the concerns of the Association that the annual meeting, as it now exists, was no longer financially feasible, due to various changes in circumstances, including availability of numerous scientific meetings, involvement of physicians in their own specialty society activities, and the economic situation of the nation thus causing a definite decline in attendance over the past several years at the ArMA meeting. The committee discussed at great length possible format changes which might be considered as alternatives to the scientific program currently held in conjunction with the annual meeting of the House of Delegates.

*It was moved and carried to discontinue the present scientific program held in conjunction with the annual meeting of ArMA's House of Delegates, beginning with the year 1982, and to develop alternative means of providing medical education to the members of the Association.*

*It was moved and carried to present such recommendation, in resolution form, to the ArMA House of Delegates during its meeting on May 20, 1981.*

### Correspondence

Board of Directors' letter of April 2, 1981. *Received*.

## HEALTH MANPOWER COMMITTEE

Meeting of the Health Manpower Committee of the Arizona Medical Association, held on Thursday, May 7, 1981, at 810 West Bethany Home Road, Phoenix, convened at 7:35 p.m., Laurence M. Linkner, M.D., Chairman, presiding.

### Legislative Update

Dr. Linkner informed the committee that none of the health-related bills introduced this year to the Legislature passed, but some of those bills will probably be re-introduced next year.

### H. B. 2340 - Homeopathy

H. B. 2340 was introduced to expand the 1980 Homeopathy Act, passed as an amendment to the Physical Therapy bill last year. The question of germaneness was discussed, and action was taken as follows:

*It was moved and carried to recommend to the Board of Directors that legal counsel be consulted to determine whether the Homeopathic Act can be challenged as to germaneness.*

The Committee agreed that if the cannot be challenged for germaneness then repeal should be sought. Action was as follows:

*It was moved and carried to recommend to the Board of Directors that a bill be developed to repeal the homeopathy act, as an alternative challenge to germaneness does not appear viable.*

### S. B. 1336 - Midwives

If passed, this bill would amend portions of the statutes concerned to lay midwives. It was the consensus of the committee that a position paper should be developed by the Maternal and Child Health Care Committee. The following action was taken.

*It was moved and carried to recommend to the Board of Directors that the Maternal and Child Health Care Committee develop a position paper on lay midwifery.*

### H. B. 2116 - Naturopathy

This bill was defeated this year but will be re-introduced next year.

### H. B. 2310 - Podiatry

Dr. Linkner explained that until hospitals voluntarily accept podiatrists as associate members on their staffs, this bill will be passed next year mandating that they extend staff privileges to podiatrists.

Dr. Maxwell pointed out that not many podiatrists are applying for staff privileges.

### Lobbying Responsibilities

Dr. Linkner suggested that lobbying could be shared by committee members. Before next year's legislative session, members could list potential medical manpower bills that they felt they would be interested in working on.

### Nursing Manpower Advisory Council

Dr. Linkner reported that the research firm engaged by the council has completed its preliminary survey of the state's nursing manpower needs. At the next meeting of the Health Manpower Committee, the final survey and recommendations will be distributed.

### Legislative Roundup Digest

Since the digest is concerned with current health manpower legislation, Linkner felt that members would be interested in receiving copies. A comments on the digest could be given to staff.

### ArMA Position Papers - Update

At the request of the Board of Directors, the committee reviewed position papers adopted in October 1979 relating to other health professions.

### Chiropractic

After considerable discussion, the following action was taken:



I was moved and carried to recommend to the Board of Directors adoption of the attached revised position on chiropractic. (A copy of this draft can be obtained from the ArMA offices.)

I was also suggested that the Arizona Chiropractic Society be encouraged to review the position paper and to advise the Board if they see the need for further action.

#### Naturopathy

Changes were suggested because of the legislation introduced this year. Action was taken as follows:

I was moved and carried to recommend to the Board of Directors adoption of the attached revised position on Naturopathy. (A copy of this draft can be obtained from the ArMA offices.)

#### Nurse Practitioner

Only one change was suggested, the word "prescribe", in the description of the activities of the nurse practitioner.

I was moved and carried to recommend adoption on the position on Nurse Practitioner as revised. (A copy of this draft can be obtained from the ArMA offices.)

#### Podiatry

It was the decision of the committee that the ArMA's position paper on podiatry should remain unchanged.

I was moved and carried to reaffirm the position paper on Podiatry as adopted in October 1979. (A copy of this draft can be obtained from the ArMA offices.)

### AD HOC INDIGENT HEALTH CARE COMMITTEE

The first meeting of the Ad Hoc Indigent Health Care Committee of the Arizona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona, on Thursday, May 16, 1981, was called to order at 12:21 p.m., by McDonald Wood, M.D., Chairman, presiding.

#### Introduction of Committee Members and Charge to the Committee

Since this was the first meeting of the committee, the members and staff in attendance were introduced and then, McDonald Wood, as Chairman of the committee, requested Dr. Kurtz to speak on what he deemed to be the exact charge of the committee. Dr. Kurtz stated that, in that the Association had had no input during the preparation of H.B. 2484, the Arizona Health Care Cost Containment System, he viewed the committee as being charged with analyzing that document and attempting to come up with

modifications of that bill or preparation of a bill which would reflect ArMA's desires relating to passage of any legislation of this nature.

#### ArHA Request for Endorsement

The committee received the Arizona Hospital Association's March 16th request for endorsement of its Indigent Health Care issues & Principles and determined to take no action at this time but to place the same on the agenda for the next meeting of the committee.

#### H. B. 2484 - Arizona Health Care Cost Containment System

The committee received and reviewed the Governor's letter of May 13, 1981 regarding the offer of assistance by ArMA, together with a summary of discussions with the AMA as to comments on specifics of H.B. 2484, as well as information from Bruce Robinson that a meeting has been scheduled between the Republican leadership and the AMA Washington Office on May 21, during which the changes required to be made in the bill for funding purposes will be discussed.

At this point, the committee discussed at great length the bill and the steps to be taken by the committee in its initial undertaking of the task ahead. It was the consensus of the membership that the following must be done in order for the committee to have a complete basic knowledge prior to formulating any final ideas: 1) a summary of H.B. 2484, which Mr. Robinson would prepare and submit to the committee; 2) a "model bill" which may have been prepared by or available to the AMA, which Mr. Robinson would request from the AMA; and 3) a meeting between the ArMA delegation to the AMA and possibly John Krichbaum, Director of the Department of State Legislation at the AMA, during the upcoming Annual Meeting of the AMA, to further discuss H.B. 2484 and the results of the May 21 meeting between the AMA and the Republican leadership. With regard to the latter item, it was agreed that Dr. Zonis would prepare a report following the meeting and immediately forward it to the committee for availability at its next meeting.

#### AMA's Report On Medicaid Cost Containment Proposals

The report of the AMA dated May 8, 1981 on Medicaid Cost Containment Proposals. Received

#### Other Business Committee Meetings

It was determined that the committee would next meet at 12:00 Noon on Saturday, June 13, 1981, to be followed by a third meeting scheduled for 12:00 Noon on Saturday, July 11, 1981.



## Future Medical Meetings

The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program, (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

## JULY

July 21, & 22, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

**Sexual Dysfunction in the Pulmonary Patient**  
July 22, 1981. Boswell Memorial Hospital. Sponsor and Contact: Byran R. Updegraff, M.D., Walter O. Boswell Memorial Hospital, 10401 Thunderbird Blvd., Sun City, AZ. Approved for hour per hour category 1 credit.

**Intra- Extracapsular Cataract Extraction, with IOL Implantation.**  
July 22-25, 1981. Phoenix, Az. Sponsor: The Eye Foundation  
Contact: Ronald W. Barnet, M.D., Medical Director, 421 N. 18th St., Ste 105, Phoenix, AZ 85006



**Coconino County Medical Society  
17th Annual Summer Medical Seminar**

July 24 & 25. Little America, Flagstaff, Arizona. Sponsor: Arizona Medical Association. Contact: Lana L. Holstein, M.D., P.O. Box 392, Flagstaff, Arizona 86002. Approved for 14 hours of category 1 credit.

**Female Sexuality for Women Only**

July 25, The Pointe of View, Phoenix, AZ. Sponsor: Family Planning Institute. Contact: Patti Clifton, Family Planning Institute, 9100 N. 2nd St., Phoenix, AZ 85020. Open to Registered Nurses and Medical Assistants.

## AUGUST

**Current Treatment of Renal Disease in the Elderly Patient**

August 4, Sun City, Arizona. Sponsor & Contact: Walter O. Boswell Memorial Hospital - Office of CME, 10401 Thunderbird Boulevard, Sun City, AZ. Approved for hour per hour category 1 credit.

**Advanced Cardiac Life Support  
(Provider)**

August 11, 12, & 13, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

**1st Annual Emergency Medical Care Seminar  
- 8th Annual Arizona Conference on Rural Health**

August 21-22. Embry-Riddle University, Prescott, AZ. Sponsors: Yavapai County Medical Society, Arizona Medical Assn., U. of A. College of Medicine, & Veteran's Admin. Hospital (Prescott). Contact: Office of CME and Outreach, Attn: Christy Snow, U. of A. Health Sciences Center, Tucson, AZ 85724. Approved for category 1 credit.

**1st Annual Pacific Southwest Symposium for Physicians and Nurses on High Blood Pressure Control**

August 26-28, Camelback Inn Resort, Scottsdale, Az. Sponsors: Am. Heart Assoc., Arizona Depart. of Health Services, Kino Hospital, Tucson, et al. Contact: Arizona Department of Health Services, Hypertension Control Program, 1740 West Adams St. Phoenix, AZ 85077. Category 1 CME hours applied for.

**Advanced Cardiac Life Support  
(Recertification)**

August 27 & 28, 1981. Arizona Medical Association. Sponsors: ACLS, Az Affiliate - Am. Heart Assn. & ArMA. Contact: Carol Turner, ArMA, 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for hour per hour category 1 credit.

## SEPTEMBER

**Mammary Reconstruction**

September 22, Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, Office of CME, 10401 Tunderbird Blvd., Sun City, AZ 85372

**Second Annual Conference on Perinatal Care**

September 25, 26. Little America, Flagstaff, Az. Sponsor: Arizona Medical Assoc. and Arizona Perinatal Trust. Contact: Arizona Perinatal Educational System, Inc., 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for 15 hours of category 1 credit.

## MONTHLY OR WEEKLY

**Shrine Medics Meeting**

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

**Office Psychiatry for the  
Primary Provider**

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

**Counter Transference Group**

Weekly, Thurs. 8—10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

**Monthly Meeting of Tucson Radiologists**

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of, Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

**Pediatric Grand Rounds**

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

**Review of Forensic Pathology**

**Current Case, Special Topics**

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.

## ARIZONA HEART INSTITUTE

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

**Clinical Conference Cardiovascular  
Medicine**

Third Tues., 5:15 p.m., second floor classroom

## ARIZONA STATE HOSPITAL

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

## MARRIAGE & DIVORCE COUNSELING IN MEDICAL PRACTICE

August 7 - 9, 1981

Sheraton, Santa Fe, New Mexico

This course has been reviewed and is acceptable for 13 elective credits by A.A.F.P.

Contact: Dr. Thomas M. Pick, 474 N. Street, Greenfield, Massachusetts 01301. Telephone - (413) 774-2889

**A.S.H. Psychiatric Grand Rounds**

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm. Contact: Dr. Conger & Staff

**Clinical-Pathological Conference**

3rd Wed., 1:30-2:30 P.M. General Serv. Bldg., Conf. Rm.

**Medical Grand Rounds**

4th Wed., 1:00-2:00 P.M., Medical Bldg. C Rm.

## BARROW NEUROLOGICAL INSTITUTE

**Medical Education**

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's Hospital & Medical Center. Contact: John Green, M.D. Approved for 1 hour category 1 credit.

**Neurology Teaching Conference**

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conference Room.

**Neurosurgical Morbidity Conference**

Wednesdays, 8:15-9:15 a.m., on first and third Tuesdays, Eighth Floor Conference Room

**Neuro-ophthalmology Conference**

Tuesdays, 7:30 a.m. in 8th floor neurology conference room.

**Spinal Injury Conference**

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conference Room.—a multidisciplinary review of admissions by neurosurgeons, orthopedists, and rehabilitation specialists

**Neuro-ophthalmology Conference.**

Weekly, 7:30 a.m., 8th floor conference Room

**Neuropathology of Gross Specimens Conference**

Thursday, 7:30-8:30 a.m. in the Morgue.

**Neurology-Neurosurgical**

Fridays, 8-9 a.m., First Floor Conference Room

**Neuropathology or Neuroradiology Conferences**

Friday, 9 a.m., Neuropathology Conference Room. Neuroradiology in First Floor Conference Room.

**Neurorehabilitation Conference**

Tuesdays, noon, 8th Floor Conference Room

**Neurosurgical Journal Club**

Saturdays, 9-11 a.m. in Eighth Floor Conference Room.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Thunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED. Director of Education.



**Medical Department Continuing Medical Education**  
 1 Wednesday, 12 Noon, C119. May, July, Sept. & Nov.  
**Minor Board**  
 1 Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept. & Nov.  
**Surgical Department CME**  
 1 Friday, 7 A.M., Educ. Center Classrooms I & II. Contact: Brian Updegraff, M.D.

## CAMELBACK HOSPITAL

5 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr., M.D.  
**Clinical Conference**  
 1 Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

100 South Dobson Road, Mesa, Arizona. Contact: L.A. Rosati, M.D. Approved for Category 1 credit.  
**CME Programs**  
 Weekly Tuesday, 7 p.m., Cafeteria-West End.  
**Clinical Conference - Dept. of Medicine**  
 Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch, Grande Rm.  
**OB/GYN Medical Staff Conference**  
 Weekly, Monday, 12:30-1:30 p.m. Grande Rm.  
**Pediatric Case Conference**  
 2d. Friday, 12:30 p.m., Grande 2

## DOCTORS HOSPITAL

17 East Thomas Road, Phoenix, Arizona 85016 Contact: Medical Staff Secretary for additional information.

**Physicians Continuing Education Program**  
 1 Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

100 N. Wilmont Road, Tucson, AZ 85712. Contact: Eric G. Ramsay, M.D. Approved for Category 1 credit.  
**Family Practice Department Meeting**  
 1 Monday, 12 Noon, Contact: R. Grossman, M.D.

## FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA

15 N. Beaver Street, P.O. Box 1268, Flagstaff AZ 86002. Contact: B. C. Schenberg, M.D., CME Program Clinical Conference. Approved for category 1 credit.  
**Interesting Case Conference**  
 1 Tuesday, 12:30 P.M., Tollefson Rm.  
**Clinical Conferences**  
 Weekly Tuesdays, 12:30 P.M., Tollefson Rm.  
**Tumor Board Case Conference**  
 1 Tuesday, 12:30 P.M., Hospital Conf. Rm.  
**Mortality & Morbidity Conference**  
 1 Thursday, 12:30 P.M., Hospital Conf. Rm.

## GOOD SAMARITAN HOSPITAL

33 East McDowell Rd., Phoenix, AZ 85016 Contact: W. J. Howard, M.D. Approved for Category 1 credit.

**Anatomical Path. & Cytology**  
 Weekly, Mondays 4:00-5:00 p.m., S-4 Conf Rm.  
**Gynecological Section Conference**  
 2nd Monday, 12:30-1:30 p.m., West Rm  
**Monday Noon Conference**  
 Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.  
**Mortality/Morbidity, Surgery Comm.**  
 2nd Monday, 11:30-2:00 p.m., West Rm.  
**Obstetrical Section Conference**  
 1st Monday, 12:30-1:30 p.m., West Rm.  
**Pulmonary Disease Grand Rounds**  
 Weekly, 12:00-1:00 p.m., D-5 North  
**Family Practice Conference**  
 Weekly Tuesday, 12:00-1:00 p.m., Fam. Practice Conf. Rm.  
**Pediatric Grand Rounds**  
 3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul Bergeson, M.D.  
**PM & R Noon Inservice**  
 2nd & 4th Tuesday, 12 Noon, R-2 Conference Rm.  
**Surgical Grand Rounds**  
 Weekly, Tuesday 7:00-8:30 a.m. East Rm.  
**Clinical Cancer Fourm**  
 3rd Wednesday, 12:00-1:00 p.m., West Rm, Contact: John A. Bruner, M.D.  
**Combined Cardiovascular & Family Practice Conf.**  
 1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5 North.  
**Learning Disabilities**  
 Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.  
**OB/GYN Dept. Review & Statistics**  
 Weekly, 12:30-3:00 p.m., OB/GYN Conf. Rm.  
**Gynecological Pathology**  
 Weekly Thursday, 1:00-2:00 p.m., S-4 Conf. Rm.  
**GI Radiology Conference**  
 1st Thursday, 12:00-1:00 p.m., F151, Radiology Conf. Rm.  
**Phoenix Ultrasound Soc. Meeting.**  
 Medical Education Building, Contact: Dr. Ben Ora  
**Neurology Grand Rounds**  
 Weekly Thursday, 9:00-10:00 a.m., D-5 North.  
**Tumor Treatment Planning Conf.**  
 2nd & 4th Thursdays, 12:00-1:00 p.m., F151 Radiology  
**Joint Tumor Gyn Conference**  
 2nd Friday, 12:30-1:30 p.m., West Rm.  
**Medical Grand Rounds**  
 Weekly Friday, 8:00-9:00 a.m., West Rm.  
**Neuropathy Conference**  
 Last Friday, 1:15-2:15 p.m., S-4 Morgue.  
**Psychiatry Grand Rounds**  
 Weekly Friday, 11:30-1:00 p.m., East Rm.

## KINO COMMUNITY HOSPITAL, (THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact: Eric C. Ramsay, M.D., Approved for Category 1 credit.  
**Attending's Hour**  
 5th Monday, 12:30 p.m., Contact: J. Goldberger, M.D.  
**Infectious Disease Conference**  
 3rd Monday, 12:30 p.m., Contact: Barry Friedman  
**Ophthalmology Conference**  
 1st Monday, 12:30 p.m., Contact: Bruce Gillers, M.D.

**Psychiatric Conference**  
 2nd & 4th Mondays, Contact: J. Santiago, M.D.  
**Surgical Conference**  
 Weekly Mondays, Contact: R. Fischer, M.D.  
**Cardiology Conference**  
 4th Tuesday, 12:30 p.m., Contact: B. Phibbs, M.D.  
**Clinical Pharmacology Conference**  
 5th Tuesday, 12:30 p.m., Contact: M. Katz, Clinical Pharm.  
**Neurology Conference**  
 1st & 3rd. Tuesday, 12:30 p.m., Contact: J. Laguna, M.D.  
**Radiology Conference**  
 2nd Tuesday, 12:30 p.m., Contact: M. Baker, M.D.  
**Medical Surgical Grand Rounds**  
 2nd Wed., 12:30 p.m., Contact: Chief Medical Resident  
**Medical Conference**  
 1st Wed, 12:30 p.m., Contact: Chief Medical Resident  
**Cardiology Conference**  
 1st Thursday, 12:30 p.m., Contact: B. Phibbs, M.D.  
**Endocrine Conference**  
 2nd Thursday, 12:30 p.m., Contact: E. Munjack, M.D.  
**GI Conference**  
 4th Thursday, 12:30 p.m., Contact: C. Kanun, M.D.  
**Mortality & Morbidity Conference**  
 3rd. Thursday, 12:30 p.m., Contact: E. Munjack, M.D.  
**OB/GYN Dept. Meeting**  
 2nd Thursday, 2 p.m., Contact J. Wurzel, M.D.  
**OB/GYN Pathology Conference**  
 Weekly, Thursday, except 2nd, Contact: J. Wurzel, M.D.  
**OB/GYN Sonograph/X-ray Conference**  
 4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.  
**Clinical Pathology**  
 5th Thursday, 12:30 p.m., Contact: J. Fleishman, M.D.  
**Renal Conference**  
 1st Friday, 12:30 p.m., Contact: T. Pence, M.D.  
**Hematology Conference**  
 2nd & 4th Friday, Contact: S. Ketchel, M.D.  
**Rheumatology Conference**  
 3rd Friday, 12:30 p.m., Contact: J. Goldberger, M.D.  
**Chest Conference**  
 5th Friday, 12:30 p.m., Contact: D. Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008  
**Continuing Medical Education Program**  
 Every other Wednesday, 7-8 a.m.

**Clinical Conferences**  
 2nd & 4th Wednesday, 12-1 p.m., Medical Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008. Contact: Leonard Tamsky, M.D.  
**Medicine Conference**  
 Daily 12-1 p.m., Contact: S. Schaffner, M.D.  
**Chest Surgery Conference**  
 Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

**Hematology Conference**

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

**OB/GYN Dept. Grand Rounds**

Weekly Tuesday, 12 Noon, Santa Cruz Room

**Obstetrical Problem Conference**

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

**Orthopedic Conference**

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

**Pediatric Grand Rounds**

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

**Urology Discharge Planning Conference**

Weekly, 11:30 a.m., Station 42

**Hand Surgery Conference**

Weekly Wed, a.m., Santa Cruz Rm.

**Neurosurgery Discharge Planning**

Weekly Wed., 1:30 p.m., Station 42.

**OB/Neonatology Seminar**

Weekly, Wed. 7:30 a.m., Yavapai Rm.

**Clinical Psychiatric Conference**

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

**Surgery Conference**

Weekly Wed., 7-8 a.m., Surgical Dept.

**Current Concepts in Medicine & Surgery**

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

**Cardiology Conference**

Weekly Thurs., 2 p.m., Santa Cruz Rm.

**OB/GYN Resident Conference**

Weekly Thurs., 12 p.m., Yavapai Rm.

**GYN Endocrine Seminar**

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

**OB/GYN Surgical Pathology Conf.**

Weekly Friday, 7:30 a.m., Yavapai Rm.

**Orthopedic X-Ray Conference**

Weekly Friday, 7:30 a.m., Santa Cruz Rm.

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.  
Contact: Leonard M. Lapenson, M.D.,  
Approved for category 1 credit.

**Clinical Conferences**

1st & 3rd Tuesdays, 12 noon, 5th floor auditorium.

**CPC or Medical-Surgical Forum**

4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.  
Contact: Leland L. Fairbanks, M.D.,  
Approved for category 1 credit.

**Pediatric Grand Rounds**

1st Tuesday, 7:30-8:30 a.m., Contact: D. Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**  
Wed Weekly, 8:00 a.m.

**Otolaryngology Grand Rounds**

4th Wednesday, 4-5 p.m., Conference Rm. A,  
Contact: N. Wendell Tood, M.D.

**Family Practice/Emergency Room Teaching Conference**

Thursday Weekly, 7:30-8:30 p.m., Conf. Rm. A,  
Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:  
George Scharf, M.D. Approved for category 1  
credit

**Monthly Medical Education Seminar**

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

**Clinical Conferences**

Weekly Tuesday, 12:30 p.m., Kiva  
Conference Rm.

**Tumor Board Conference**

Weekly Friday, 12 p.m., Kiva Conf. Rm.  
Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251.  
Contact: W. S. Williams, M.D., Approved for  
category 1 credit.

**Family Practice Conference**

1st Monday, 12:30 p.m., Doctors' Lounge

**Emergency Medical Services Conference**

2nd Monday, 12:30 p.m., Doctors' Lounge

**Neurology/Neurosurgery Conference**

3rd Monday, 12:30 p.m., Doctors' Lounge

**CPC Conference**

4th Monday, 12:30 p.m., Doctors' Lounge

**Pediatrics Conference**

5th Monday, 12:30 p.m., Doctors' Lounge

**Pulmonary Conference**

1st Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiology Conference**

2nd Tuesday, 12:30 p.m., Doctors' Lounge

**Surgery Conference**

3rd Tuesday, 12:30 p.m., Doctors' Lounge

**Resident Grand Rounds**

4th Tuesday, 12:30 p.m., Doctors' Lounge

**Medical Subspecialties**

5th Tuesday, 12:30 p.m., Doctors' Lounge

**Uronephrology Conference**

3rd Thursday, 12:30 p.m., Doctors' Lounge

**Tumor Conference**

4th Thursday, 12:30 p.m., Doctors' Lounge

**GI/Med/Surg/Radiology Conference**

2nd Friday, 12:30 p.m., Doctors' Lounge

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact:  
Gerald L. Hansbro, M.D.

**Cardiac Conference**

Weekly Monday, 12:15 p.m., Auditorium

**Surgery Conference**

1st Tuesday, 12:15 p.m., Auditorium

**Emergency Medicine Conference**

1st Wednesday, 12:15 p.m., Auditorium

**Cardiovascular-Thoracic Record Review**

3rd Wednesday, 12:15 p.m., Auditorium

**Psychiatry Conference**

3rd Thursday, 7 a.m., Auditorium

**Combined Medical General Practice  
Conference**

1st Friday, 12:15 p.m., Auditorium

**Toxicology Grand Rounds**

2nd Friday, 7:30 a.m., Auditorium

**Ophthalmology Conference**

1st Saturday, 8:30 a.m., Auditorium.

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85013.  
Contact: Joseph C. White, M.D.

**OB/GYN Section Conference**

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor  
Conf. Rm.

**Genetics Conference**

Weekly Monday, 12:30 p.m., Pediatric

Department.

**Pediatric Rounds**

Weekly Monday, Wed. & Friday, 10:30 a.m.,  
Pediatric Department.

**Pediatric Grand Rounds**

4th Tuesday, 7:30-8:30 a.m., Contact: J. H.  
Charlton, M.D.

**ECG Conference**

Weekly Tuesday, 12:30 p.m., Pediatric  
Department.

**Medical Grand Rounds**

Weekly Wednesday, 8 a.m., 1st Floor C  
Room.

**Visiting Professor Formal Presentation**

Weekly Thursday, 8 a.m., PIMC

**Visiting Professor Informal Presentation**

Weekly Thursday, 9:30 a.m., 1st floor C  
Rm.

**Visiting Professor Formal Presentation**

Weekly Thursday, 12:30 p.m., PIMC

**Nephrology Conference**

Weekly Fridays, 12:30 p.m., Pediatric  
Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact:  
Eric G. Ramsay, M.D. Approved for Category  
1 credit.

**Family Practice Department Meeting**

3rd Tuesday, 12 p.m., Contact: W.  
Moteforte.

**Ophthalmology Morbidity/Mortality Conf**

4th Tuesday, 12:15 p.m., Contact: K.  
Sowards.

**Current Concepts in Medicine**

Weekly, Tuesday, 12 p.m., Auditorium.

**Hematology-Oncology Conference**

Last Wednesday, 12:15-1:15 p.m., Contact:  
Salmon, M.D.

## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W. St. Mary's Road, Tucson, AZ 85711.  
Contact: see below.

**Monthly Specialty Conference-Dept.  
Surgery**

1st Monday, 7:30 a.m., Century Rm.  
Contact: Med. Staff Office.

**Grand Rounds: Medical Surgical, Fam  
Practice, Pathology, Radiology**

Weekly Thursday

**Emergency Medicine Lectures**

Weekly Thursday, 8 a.m., Century Room

**Mental Health Update**

1st Friday, 11:30-1:00 p.m., Century Rm.

**Cardiology Conference**

Weekly Friday, 8:00-9:00 a.m., Century Rm.  
Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.  
Contact: Eric G. Ramsay, M.D. Approved  
Category 1 credit.

**Cardiology Conference**

Weekly Monday, except last, 12 Noon  
Contact: J. Fernandez, M.D.

**Dermatology Conference**

4th Monday, 5:00 p.m., Contact: R. Miller,  
M.D.

**Endocrinology Conference**

Last Monday, 12 p.m., Contact M. Park,  
M.D.

**Perinatal Conference**

2nd Monday, 7:30 p.m., Contact: J. Lohme,  
M.D.



#### **st Conference**

Tuesday, 12 noon, Contact: William  
n, M.D.

#### **Hematology Conference**

Tuesday, 12 Noon, Contact: M. Boxer,

#### **Infectious Disease Conference**

Tuesday, 12 noon, Contact: B. Friedman,

#### **Neurology Conference**

Tuesday, 12 noon, Contact: Dr. Seltzer.

#### **Orthopedic Conference**

Tuesday, 8:00 p.m., Contact: Jay Katz,

#### **Pediatric Grand Rounds**

& 3rd Tuesday, 12:30 p.m., Contact: Dr.  
tner.

#### **Cardiac Cath. Conference**

& 4th Wednesday, 5:15 p.m., Contact: L.  
kels, M.D.

#### **Clinical Pathology Conference**

Wednesday, 8:00 a.m., Contact: Dr.  
hs.

#### **Family Practice Meeting**

Wednesday, 12:30 p.m., Jan., April, July,  
ct. Contact: C. Mangelsdorf, M.D.

#### **Medical Conference**

Weekly Wednesday, 8:00 a.m., Contact: M.  
hs, M.D.

#### **Neurology-Neurosurgery Conference**

Weekly Wednesday, 12 noon, Contact: H. W.  
chsbaum, M.D.

#### **Ophthalmology Conference**

Thursday, 12 noon, Contact: R. Friedman,  
M.

#### **Thororadiology Conference**

Weekly Thursday, 5:00 p.m., Contact: N.  
nar, M.D.

#### **Tumor Conference**

Weekly Thursday, 12 noon, Contact: Dr.  
tings.

#### **GI Conference**

Weekly Friday, 12 noon, Contact: C. Krone,  
D.

#### **Perhospital Nuclear Medicine Conference**

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts,  
D.

#### **GYN Conference**

Friday, 7:30 a.m., Contact: P. Evans, M.D.

#### **GYN Pathology Conference**

Friday, 7:30 a.m., Contact: R. Spark, M.D.

#### **Medical Department Conference**

Weekly Saturday, 7:30 a.m., Contact: Dr.  
stings, TMC.

#### **Medical Grand Rounds**

Weekly Saturday, 9:00 a.m., UAHSC-Room  
13, Contact: Dr. Norton.

### **PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER**

Street and Indian School Road, Phoenix,  
85012. Contact: Alfred Heiburn, M.D.  
proved for Category 1 credit.

#### **X-Ray Clinical Correlation Conf.**

& 3rd Monday, 1 p.m., Rm. C435, Contact:  
s. Sanowski, & Nielsen.

#### **Medical/Surgical GI Conference**

& 3rd. Mondays, 3 p.m., Rm. 3134,  
ntact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext  
3.

#### **Pathology Conf.**

d. & 4th Monday, 1 p.m., Path Conf. Rm.,  
ntact: Dr. Sanowski..

#### **Grand Rounds**

Weekly Tuesday, 1 p.m., Contact: Drs.  
nowski, Kozarek & Partyka

#### **Cancer Symposium**

Weekly Wed., 1 p.m., T-5, Contact: Dr. Byrne,  
Ext. 426.

#### **Housestaff Pulmonary Disease Teaching Conf.**

Weekly Wed., 3-4 p.m., Contact: Dr.  
Rohwedder, Ext. 388.

#### **Medical Surgical Chest Conference**

1st & 3rd Thursday, Contact: Dr. Rohwedder  
or Dr. Gill.

#### **Cardiology Conference**

2nd Thursday, 1 p.m., Rm. T-5.

#### **Consultant Rounds**

1st Thursday, 1:30 p.m., Contact: Dr. Harlan

#### **Consultant Rounds**

2nd Thursday, 11:00 a.m., Contact: Dr.  
Schaffner

#### **Consultant Rounds**

4th Thursday, 8:00 a.m., Contact: Dr.  
Severino

#### **Medical Service Grand Rounds**

Weekly Friday, 11 a.m., Contact: Dr. Zeller

#### **GI Resident Conference**

Weekly Friday, 1:00 p.m., D446, Contact: Drs.  
Grobe, Phelps, Sanowski & Kozarek.

#### **Surgical Journal Review & Videotape Session**

Weekly 1 p.m., Room 3134.

### **PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER**

Prescott, Arizona 86313. Contacts listed  
below. Approved for category 1 credit.

#### **Medical Lectures**

1st & 2nd Thursday & Weekly, Fridays, 1:30  
p.m., Bldg. 28. Contact: J. W. Fitzharris, D.O.

#### **GI Rounds**

Third Thursday, 10 a.m.-2:30 P.M., Contact:  
J. W. Fitzharris, D.O.

#### **Grand Rounds**

Weekly Thursdays, 11 a.m., Bldg. 107.  
Contact: J. W. Fitzharris, D.O.

### **TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)**

3601 South Sixty Ave., Tucson, AZ 85723.  
Contacts listed below. Approved for category  
1 credit.

#### **Medical Surgical Chest Conference**

Weekly Tuesday, 2 p.m., Contact: Dr. Young

#### **Medical Grand Rounds**

Weekly Wed., 12-1:00 p.m., VA Hospital Staff  
Conf. Rm. & (AHSC), Contact: Jay Smith,  
M.D.

#### **Surgical Grand Rounds**

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

#### **Endocrinology Seminar**

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm.  
N318, Contact: Dept. of Internal Medicine.

#### **Grand Rounds**

Weekly, Thursday, 11 a.m., Bldg. 107,  
Contact: J. Fitzharris, D.O.

#### **Vascular Radiology, Interesting Case Conf.**

Weekly Thursday, 12:00 noon.

#### **Neurology Grand Rounds**

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

### **YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)**

2400 Avenue A., Yuma Az 85364. Contact:  
Alan Winfield, M.D. Approved for category 1  
credit.

#### **Radiology Conference**

1st Tuesday, 7:00 a.m.

#### **Operation Outreach**

2nd Tuesday, 6:30 p.m.

#### **Pathology Conference**

4th Tuesday, 7:00 a.m.

#### **Operation Outreach**

2nd Wednesday, 7:00 a.m.

### **U OF A HEALTH SCIENCES CENTER**

Sponsor: U of A College of Medicine, Tucson,  
AZ 85724. Robert M. Anderson, M.D., Dir. of  
CME. Contact: See below. Approved for  
category 1 credit.

#### **Anesthesiology Board Review Conference**

2nd & 4th Monday, 4-5 p.m., AHSC Dining  
Rm. C&D, Contacts: Dr. Vaughn & Kryc.

#### **Anesthesiology Basic/Clinical Sciences Lectures**

Weekly Thursday, 4-5 p.m., Room 5403

#### **Anesthesiology Case Discussion**

Weekly Wed., 7:00 a.m., AHSC, Dining Rm.  
C&D.

#### **Anesthesiology Resident Presentation**

1st Monday, 4-5 p.m., AHSC Dining Room,  
C&D, Contacts: Drs. Otto & Zehngut.

#### **Cancer Center Tumor Board Seminar**

3rd Tuesday, Monthly, 12-1 p.m., HSC  
Auditorium, Contact: Cancer Center

#### **Cardiac Catheterization Conference**

Weekly Friday, 4:00 p.m., Contact: Dr.  
Temkin.

#### **Cardiology Research Conference**

Weekly Tuesday, 7:30 a.m., Contact: Dr.  
Roeske.

#### **Tucson Cardiovascular Society**

1st Thursday, 6:00 p.m., AHSC, Contact: Dr.  
Byrne-Quinn

#### **Clinical Immunology, Allergy & Rheumatology Rounds**

Every Friday, Noon-1 p.m. Contact: John  
Boyer, M.D., Dept. of Internal Medicine.

#### **Cerebrovascular Disease Conference**

Mondays, 5-6 p.m., Weekly, Rm. 5505.  
Contact: Jerry Goldston, M.D., Department  
of Surgery.

#### **Dermatology Rounds**

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

#### **Endocrinology Seminar**

Weekly Thursday, 12-1 p.m., Contact: Dr.  
Johnson

#### **Emergency Medicine Grand Rounds**

Tuesdays, 9 a.m., AHSC, Contac: Dr.  
Sanders.

#### **GI Pathology Conference**

4th Friday, 1:30 p.m., AHSC, Contact: S.  
Paplanus

#### **GI Radiology Conference**

2nd. & 4th Mondays, 7:30 a.m., AHSC,  
Contact: Dr. T. Hunter

#### **Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact: Dr.  
Manning

#### **Hematology-Oncology Clinical Conference**

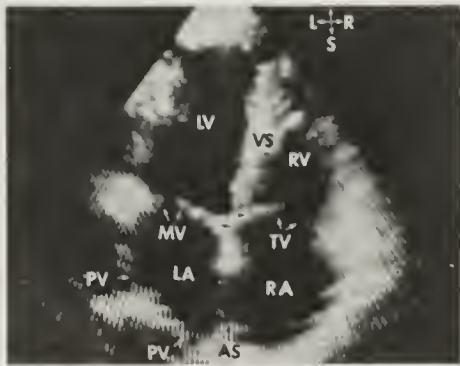
1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505.  
Contact: S. Salmon, M.D., Dept. of Internal  
Medicine.

#### **Medical Grand Rounds**

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr.  
J. Smith.

# DIAGNOSTIC ULTRASOUND

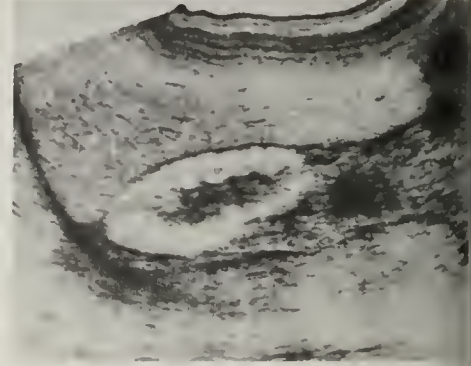
PERFORMED IN A PLEASANT ENVIRONMENT  
WITH THE ECONOMIC CONVENIENCE  
OF A PRIVATE OFFICE



4 Chamber View of Heart



Third Trimester Pregnancy



Normal Liver and Kidney

A safe non-invasive modality for evaluation of the  
Abdomen • Gravid Uterus • Heart • Eye • Thyroid • Retroperitoneum • Vascular Tree

**Ben-Ora Imaging, Ltd.**  
**Avi Ben-Ora, M.D.**  
909 E. Brill Street, Suite 210  
(602) 254-4577

**Ultrasound Diagnostic Services**  
**Avi Ben-Ora, M.D., Med. Director**  
3411 N. 5th Ave., Suite 410  
(602) 279-9375

## **Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

## **Neuropathology Review Conference**

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

## **Neuroradiology Conference**

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

## **Neuromuscular Journal Conference**

2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

## **Neuropathology Case Review**

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

## **Neurosciences Seminar**

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

## **Nuclear Medicine**

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

## **Ophthalmology Grand Rounds**

3rd Friday, 7:30 a.m., AHSC, Contact: Dr. J. Herschler

## **Orthopedic Rounds**

Saturday, 8:00 a.m., Contact: Dr. Peltier.

## **Pain Conference**

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

## **Pathology Seminar**

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

## **Tucson Pathologist Conference**

1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. T. Graham.

## **Pediatric Grand Rounds**

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

## **Pediatric Problem Patient Conference**

Weekly Wed., 8:00 a.m., Contact Dr. Walson

## **Pediatric Research Forum**

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

## **Pediatric Specialty Conference**

Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

## **Psychiatric Grand Rounds**

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

## **Psychiatric Monthly Case Conference**

2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

## **Pulmonary Rounds**

Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

## **Chest Radiology**

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

## **Neuroradiology Teaching Conference**

Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

## **Radiation Oncology Planning Conference**

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

## **Radiology Interesting Case Conference**

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

## **Gastrointestinal Radiology**

Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

## **Radiology-Rheumatology Conference**

Weekly Thursday, 7:45 a.m., UAHSC, Library Rm.1535C.

## **Uroradiology (Genitourinary Radiology)**

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

## **Renal Pathology Conference**

1st & 3rd Thurs., 11:30 a.m., Contact: Nagle.

## **Residents Noon Conference**

Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact: Dr. A. Greensher.

## **Resident's Conference**

Wednesday, weekly 5-6 p.m., Diagnostic Radiology Conf. Rm.

## **Surgical Grand Rounds**

Saturdays, 9:00 a.m., Rm. 5403, AHSC, Contact: Dr. Wangenstein.

## **Surgical Morbidity & Mortality Conference**

Weekly Wed., 8:00 a.m., Contact: Wangenstein.

## **Vascular Surgery Conference**

Weekly Tuesdays, 5-6 p.m., AHSC Dining Room E.

## **Joint Thyroid Conference**

1st & 3rd Wed., Contact: S. C. Werner, M.D.

## **Trauma Conference**

Monday, 4:00 p.m. UAHSC, Rm. 4403, Contact: Dr. Peltier.

## **Toxicology Conference**

Weekly Tuesday, 8:00 a.m., Contact: Dr. Ke. Likes

Section.

## **Tucson Ultrasonography Group**

Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. Freundlich.

## **General Urology Conference**

Weekly Thursday, 12:00 noon, AHSC & Hospital Contact: Dr. G. W. Drach.





# Acute pain is no laughing matter.

## The first prescription for the first days of acute pain **Empirin® $\bar{c}$ Codeine #3**

Each tablet contains: aspirin, 325 mg; plus codeine phosphate, 30 mg, (Warning — may be habit-forming). 

**For the millions of patients who need the potency of aspirin and codeine for their acute pain.**

The pain of fractures, strains, sprains, burns and wounds is at its peak during the first three to four days following trauma. The potent action of Empirin  $\bar{c}$  Codeine begins to work within 15 minutes of oral administration, an important advantage during this acute pain period. Empirin  $\bar{c}$  Codeine has unique bi-level action to attack pain at two critical points: peripherally at the site of injury and centrally at the site of pain awareness.

For the most effective dosage in treating acute pain, begin with... two tablets of Empirin  $\bar{c}$  Codeine #2 or #3, every four hours. Titrate downward as pain subsides.

### **EMPIRIN® with Codeine**

**DESCRIPTION:** Each tablet contains aspirin (acetylsalicylic acid) 325 mg plus codeine phosphate in one of the following strengths: No. 2 — 15 mg, No. 3 — 30 mg, and No. 4 — 60 mg. (Warning — may be habit-forming) 

**CONTRAINDICATIONS:** Hypersensitivity to aspirin or codeine.

#### **WARNINGS:**

**Drug dependence:** Empirin with Codeine can produce drug dependence of the morphine type and, therefore, has the potential for being abused. Psychic dependence, physical dependence, and tolerance may develop upon repeated administration of this drug and it should be prescribed and administered with the same degree of caution appropriate to the use of other oral, narcotic-containing medications. Like other narcotic-containing medications, the drug is subject to the Federal Controlled Substances Act.

**Use in ambulatory patients:** Empirin with Codeine may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery. The patient using this drug should be cautioned accordingly.

**Interaction with other central nervous system (CNS) depressants:** Patients receiving other narcotic analgesics, general anesthetics, phenothiazines, other tranquilizers, sedative-hypnotics, or other CNS depressants (including alcohol) concomitantly with Empirin with Codeine may exhibit an additive CNS depression. When such combined therapy is contemplated, the dose of one or both agents should be reduced.

**Use in pregnancy:** Safe use in pregnancy has not been established relative to possible adverse effects on fetal development. Therefore, Empirin with Codeine should not be used in pregnant women unless, in the judgment of the physician, the potential benefits outweigh the possible hazards.

#### **PRECAUTIONS:**

**Head injury and increased intracranial pressure:** The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions or a pre-existing increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the clinical course of patients with head injuries.

**Acute abdominal conditions:** The administration of Empirin with Codeine or other narcotics may obscure the diagnosis or clinical course in patients with acute abdominal conditions.

**Allergic:** Precautions should be taken in administering salicylates to persons with known allergies: patients with nasal polyps are more likely to be hypersensitive to aspirin.

**Special risk patients:** Empirin with Codeine should be given with caution to certain patients such as the elderly or debilitated, and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, prostatic hypertrophy or urethral stricture, peptic ulcer, or coagulation disorders.

**ADVERSE REACTIONS:** The most frequently observed adverse reactions to codeine include light-headedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients and some of these adverse reactions may be alleviated if the patient lies down. Other adverse reactions include euphoria, dysphoria, constipation, and pruritus.

The most frequently observed reactions to aspirin include headache, vertigo, ringing in the ears, mental confusion, drowsiness, sweating, thirst, nausea, and vomiting. Occasional patients experience gastric irritation and bleeding with aspirin. Some patients are unable to take salicylates without developing nausea and vomiting. Hypersensitivity may be manifested by a skin rash or even an anaphylactic reaction. With these exceptions, most of the side effects occur after repeated administration of large doses.

**DOSAGE AND ADMINISTRATION:** Dosage should be adjusted according to the severity of the pain and the response of the patient. It may occasionally be necessary to exceed the usual dosage recommended below in cases of more severe pain or in those patients who have become tolerant to the analgesic effect of narcotics. Empirin with Codeine is given orally. The usual adult dose for Empirin with Codeine No. 2 and No. 3 is one or two tablets every four hours as required. The usual adult dose for Empirin with Codeine No. 4 is one tablet every four hours as required.

**DRUG INTERACTIONS:** The CNS depressant effects of Empirin with Codeine may be additive with that of other CNS depressants. See WARNINGS.

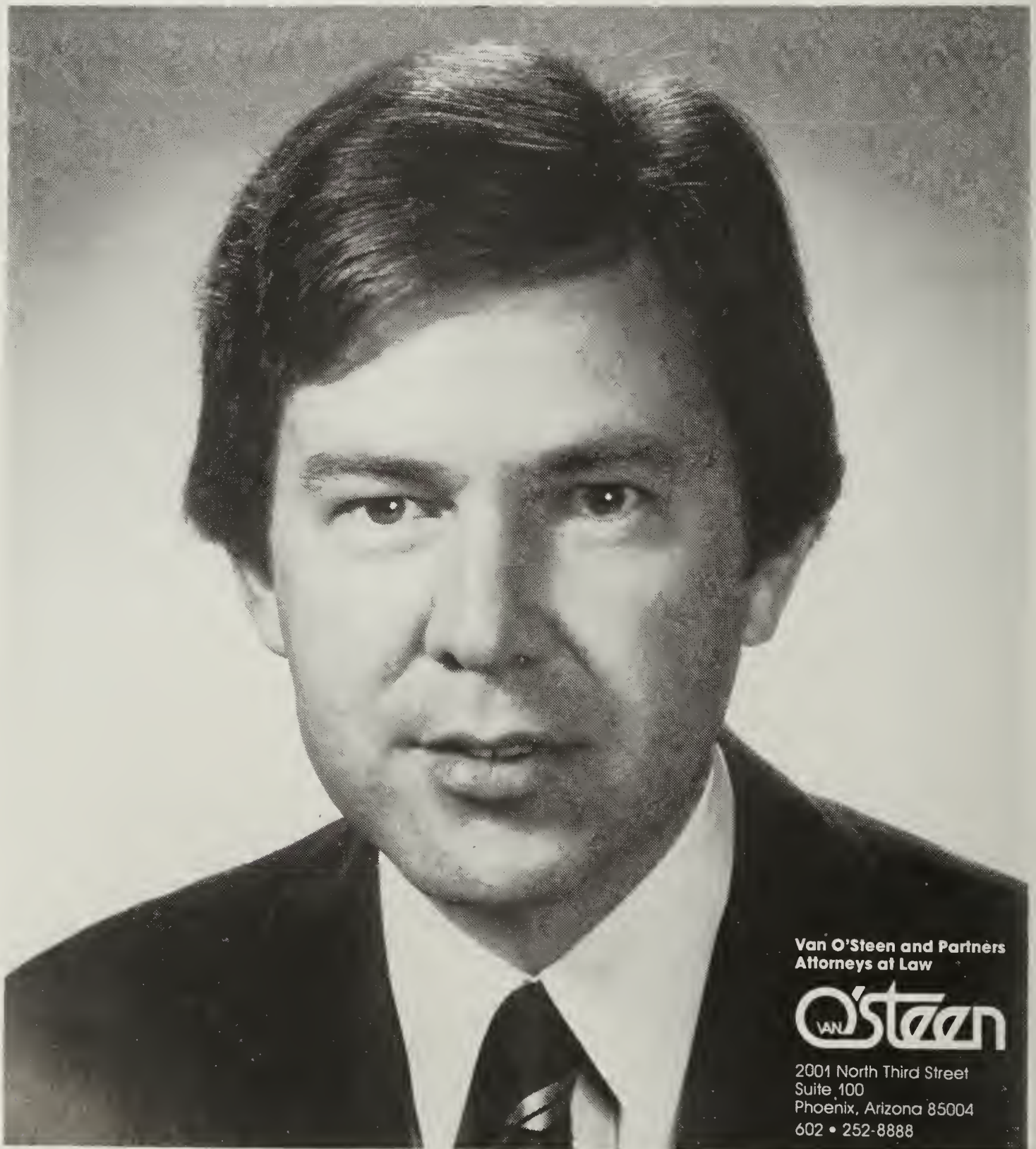


**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709



# What doctors should know. . . about lawyers

A physician's license to practice medicine is his or her most valuable asset. In Arizona, it can be suspended or permanently revoked by the Board of Medical Examiners based on the complaint of a single disgruntled patient. We strongly recommend that you discuss all Board inquiries with a lawyer who handles Administrative Law matters.



**Van O'Steen and Partners  
Attorneys at Law**

**Van O'Steen**

2001 North Third Street  
Suite 100  
Phoenix, Arizona 85004  
602 • 252-8888



Joint Life is the insurance of the '70's"

## Doctor, HBA Life's

### JOINT LIFE INSURANCE

insures two people with only  
one policy, one low premium

with these advantages:

**BUSINESS INSURANCE:** Two doctors, partners or associates in a professional corporation, will find this plan a low-cost way to provide funds if one of the two dies. It also may be used by husband and wife or father and son to provide funds to pay off special debts or for any of the other purposes for which life insurance may be used.

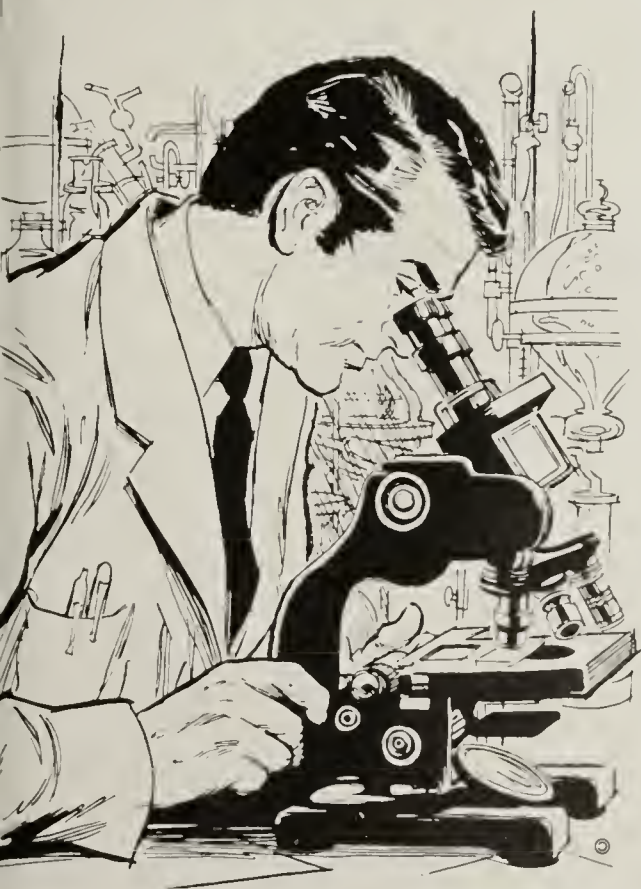
**LOWER INSURANCE AGE:** Often, one insured is somewhat younger than the other. The joint equal age can take years off the age of the older insured. The policy provides for the payment of the face amount upon the death of the first of the two insureds to die.

**GUARANTEES SURVIVOR INSURABILITY:** The surviving insured, within 90 days and prior to age 70, is guaranteed the right to purchase life insurance. If the surviving insured doesn't exercise this right and dies during this 90-day period, the conversion would automatically be made by the Company and the face amount, less the conversion premium, would be paid to his beneficiary.

**DOUBLE FOR SIMULTANEOUS DEATH:** If both insureds should die simultaneously, the sum insured upon their deaths would be paid to their beneficiaries.

**CONVERTIBLE TO SINGLE LIFE:** The Joint Life Insurance may also be converted to single insurance prior to the older insured's 60th birthday. The amount converted can be all on one life or the other or divided between the two as long as each does not take less than \$1,000 of life insurance.

An HBA Life Agent would be glad to discuss it further at your convenience.



**THE HBA LIFE**  
INSURANCE COMPANY

1337 N. FIRST ST. • PHOENIX • 258-4885

**A Local Company Serving the West Since 1944**

# 5%

*In the past year,  
this company has placed  
less than five percent of its  
collectables with collection  
agencies.*

*Nothing more need be said.*



**The Anesthesia Office, Inc.**

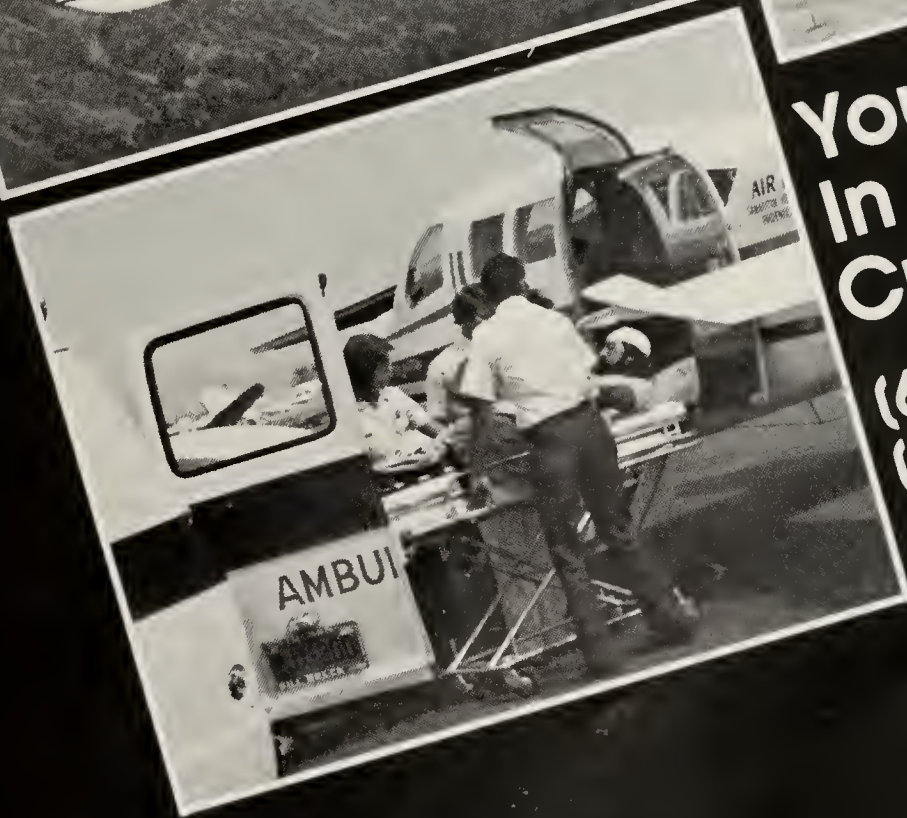
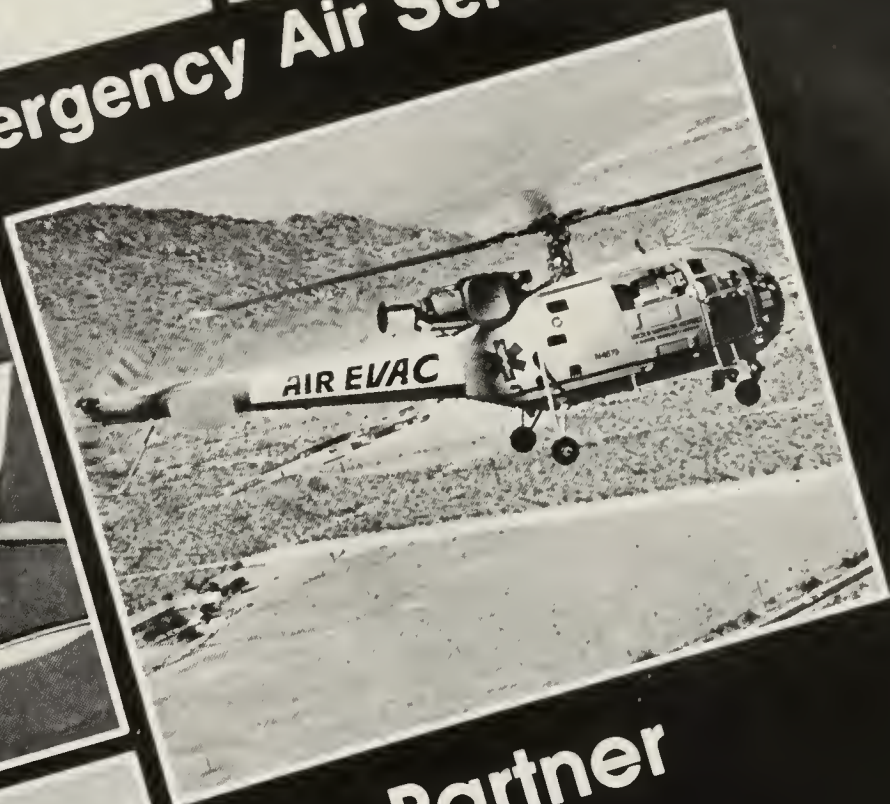
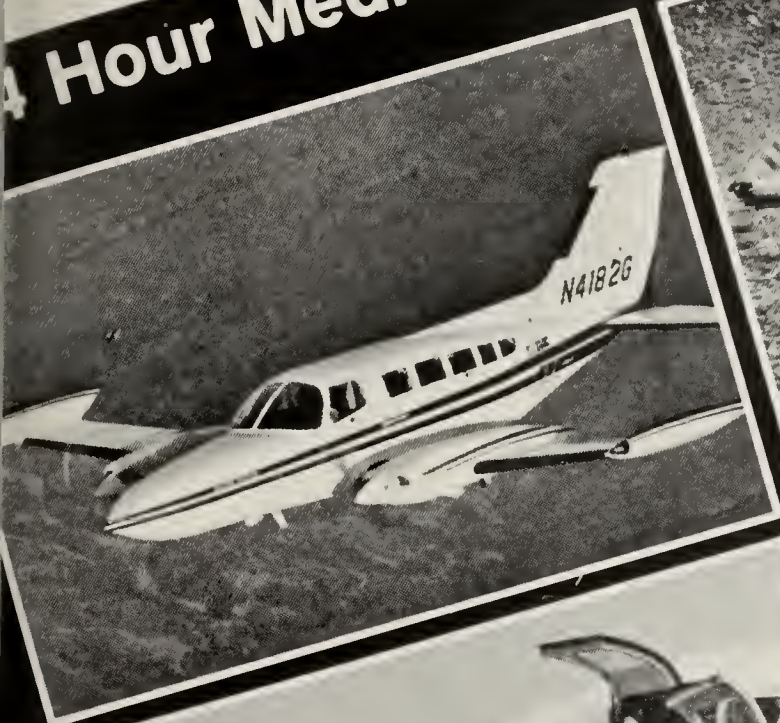
Main Office  
Post Office Box 39429  
Phoenix, Arizona 85069  
(602) 242-1908



coln Samaritan

# AIR EVAC

24 Hour Medical Emergency Air Service



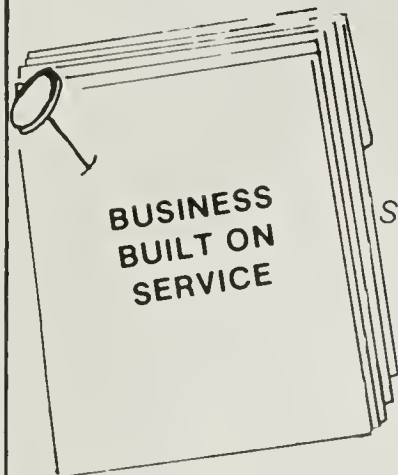
Your Partner  
In  
Critical Care  
(602) A-I-R-E-V-A-C  
(247-3822)

Our name is our number  
Serving Arizona and the Nation  
Since 1969



# Classified

## GUARANTEED SAVINGS!!



Billing and mailing  
same — day services

*Statements made from your  
ledgers at your office*

**House of Mailings**  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708

**Louis Jacob**  
General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



We Want You With Us



**L. Louis Jacob Agency**

Complete Insurance Services  
Call Us for an Auto Quote

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090



**Relief of Headaches  
Concerning Practice  
Management Problems**



**J. Prekup & Assoc.**

**Problem Solvers for the Medical Profession.**

3033 N. Central, Suite 509-C Phoenix, Az 85012  
(602) 279-1884

*Creative Design Ltd.*



Susan Yug Schnoerr Cindy L. Mulgrew

1720 West Isleta Avenue  
Mesa, Arizona 85202  
(602)-839-6229 or 831-6380

Residential and Commercial  
Custom Interiors

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R.N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"

*Tired of all that money going out?*

**For a competitive Quote on:**

- Physicians & Surgeons Malpractice •
- Office Package •
- Automobile •
- Homeowners •



**PHOENIX-AMERICAN INSURANCE AGENCY**  
1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*



## PROFESSIONAL OPPORTUNITIES

### WORK WITH US IN SUNNY ARIZONA

INA Healthplan needs physicians in all specialties and most specialties in Phoenix and Tucson. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus provided. If team interaction and casual interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 1001 North 7th Street, Phoenix, AZ 85014.

### PHYSICIAN PRACTICE

Retiring after 35 years in central Phoenix. Selling practice, real estate (includes two rentals), equipment & furnishings. Seller will work with buyer during transition. Negotiable \$30,000 down & will finance balance of \$110,000 for 15 years at 10%. Contact Charles Moore, Allan Jones Realty, Inc. 1001 N. Central, Phoenix, AZ 85004. Phone (602) 252-6736.

### PHYSICIAN AVAILABLE

Solo practice; partnership considered. New York University trained; speak fluently in English and Spanish. Available July 81. C.V. requested. Aldy Castor, M.D., 1350 15th St., Apt. 14J, Fort Lee, New Jersey 07024. (609) 654-5100 work, or (201) 886-0184 home.

### PHYSICIAN NEEDED

Fishing, hunting, snow skiing and water skiing. The ultimate in outdoor recreation is available with a medical practice in the beautiful White Mountains of Arizona. (Only one hour drive to metropolitan Phoenix.) Work with 6 other physicians - 3 Family Practice, 1 Radiologist, 1 Intern, and 1 Surgeon - on the staff of a 25-bed, fully-equipped, well-staffed, JCAH-accredited hospital, and be affiliated with Samaritan Health Services, a unique hospital-hospital system including Good Samaritan, the state's largest, most comprehensive medical center. No clinic hassles! We're busy and we need you! Please write or call Brad Bringgold, M.D., White Mountain Communities Hospital, P.O. Box 471, Springerville, AZ. 85938. Phone: (602) 333-2694

### STAFF OF CARDIOLOGY

Position available in 550+ bed university affiliated teaching hospital. For additional information, contact John W. Heaton, M.D., Chairman, Department of Medicine, MCGH, 601 East Roosevelt, Phoenix, AZ 85008.

### ENDOCRINOLOGIST STAFF POSITION AVAILABLE

Research opportunities available. 550+ bed university affiliated teaching hospital. For additional information, contact John W. Heaton, M.D., Chairman, Department of Medicine, MCGH, 601 East Roosevelt, Phoenix, AZ. 85008.

## REAL ESTATE

### ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### MEDICAL OFFICE FOR LEASE

New building, midway between Good Samaritan and St. Joseph's Hospitals. Completed suite, approximately 1300 square feet. Available immediately, ideal for internist, family practitioner, surgeon. Please contact William Weese, M.D., 375 E. Virginia Ave., Phoenix, AZ. Phone (602) 265-0000

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### SUBLEASE

North East Phoenix Prime Medical building in the area. Consultation room and furnished examination rooms and reception area, lab and waiting room. Ideal for Internal Medicine, Sub-Specialty, Surgical Sub-Specialty, Dermatologist or Psychiatrist. Call (602) 954-6041.

### MEMORIAL MEDICAL OFFICE BUILDING

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

### BEAUTIFUL CONDOMINIUM

Condominios Pilar  
San Carlos Bay, Mexico  
For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

### FOR RENT

Home in Flagstaff, 3 Bedrooms, 2 bathrooms (Maximum 7 people). For information call. (602) 257-4336.

### PINETOP MOUNTAIN CABIN - FOR RENT

White Mountain summer home. Ideal now for summer-time activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

### FOR SALE

ADR Real Time Ultrasound model 2130. In excellent condition. Has freeze frame and electronic calipers. Reasonable price. Ideal for OB's office. Call (602)964-8611.

### COMPLETE, MODERN OFFICE

Equipment, everything from A-Z including electric typewriters, desks, examining tables, hematology analysis, pulmonary function, EKG, refrigerators, waiting room furniture, etc. Replacement value approximately \$50,000. Terms and price negotiable. Call (602) 772-8101 or 772-8998.

### FOR SALE

Metal 2 shelf x-ray file with sliding doors. \$85; Gray metal treatment stand, \$80; Beam balance baby scales, \$30; IBM C-model typewriter, pica type, \$225; 14" x 17" x-ray cassette with par speed screens, \$75; Also 10" x 12" and 8" x 10" sizes, Miscellaneous hangers, \$5-\$7. Call (602) 774-6671 office hours. Flagstaff.

### FOR SALE

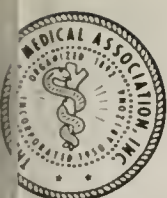
Retired doctor wishes to sell physician equipment and instruments. Among many items are, Raytheon Diathermy, Burdick EK4 Cardeograph, Hamilton Pediatric Table. Contact Dr. Clyde Barker, Jr., (602) 488-9002 or son Clyde Barker 979-5733. All items appraised, and priced to help young doctor get started

## INDEX TO ADVERTISERS

|                                             |          |
|---------------------------------------------|----------|
| AirEvac .....                               | 567      |
| The Anesthesia Office, Inc. ....            | 566      |
| Arizona Laminating .....                    | 508      |
| Ben-Ora Imaging Ltd. ....                   | 562      |
| Blue Cross/Blue Shield .....                | 504      |
| Burroughs Wellcome                          |          |
| Zyloprim .....                              | 498      |
| Empirin with Codeine #3 .....               | 563      |
| Camelback Hospital .....                    | 509      |
| Classified Ads .....                        | 568, 569 |
| Computed Neurological Scanning Center ..... | 508      |
| Creative Design, Ltd. ....                  | 568      |
| Doctors Central Directory .....             | 568      |
| Eli Lilly & Co.                             |          |
| Keflex .....                                | 501      |
| Forest Service .....                        | 506      |
| HBA Life Insurance .....                    | 565      |
| Health Agencies of the West .....           | 499      |

|                                  |                        |
|----------------------------------|------------------------|
| House of Mailings .....          | 1                      |
| Louis Jacobs .....               | 5                      |
| Medical Bookstore .....          | 5                      |
| Medical Enterprises, Inc. ....   | 5                      |
| Mica Insurance Co. ....          | 5                      |
| Mountain Bell .....              | 5                      |
| Van O'Steen & Partners .....     | 5                      |
| Phoenix/American Insurance ..... | 5                      |
| Prekup and Associates .....      | 5                      |
| Roche Labs                       |                        |
| Valium .....                     | Second Cover, 497, 4   |
| Limbital .....                   | Third Cover, Fourth Co |
| Roswell Bookbinding .....        | 5                      |
| Danny T. Sievert                 |                        |
| Insurance .....                  | 5                      |
| Upjohn Company                   |                        |
| Motrin .....                     | 505, 5                 |
| Western Physician                |                        |
| Purchasing Assoc. ....           | 5                      |
| Wickenberg Inn .....             | 5                      |





# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

(SN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

## MINARS IN CONTINUING EDUCATION

### CARDIOLOGY

- Ventricular Ectopy vs  
Aberrant Conduction:  
The Problem, The Theory, and  
Some Practice..... 590  
*Brendan Phibbs, M.D.*

### EST MEDICINE

- The Relationship Among Silica  
Silicosis, and Lung Carcinoma ..... 596  
*Michael D. Lebowitz, Ph.D.*

### DERMATOLOGY

- Pityrosporum Folliculitis  
A Common Acneiform Condition  
of Middle Age ..... 598  
*Lindie K. Borton, M.D., et al.*

### GASTROENTEROLOGY & LIVER DISEASE

- Cystadenomas:  
Microcystic Adenomas of  
the Pancreas ..... 602  
*Hugo V. Villar, M.D., F.A.C.S., et al.*

### MEDICAL GENETICS

- Contemporary Management of Leukemia  
Cytogenetic Diagnosis and Monitoring of  
Chronic Myelocytic Leukemia ..... 608  
*Avery A. Sandberg, M.D., et al.*

### GYNECOLOGY

- Invasive Carcinoma of the Cervix  
Treated Primarily with Radiation Therapy:  
University of Arizona Experience ..... 613  
*Silvio A. Aristizabal, M.D., et al.*

### PSYCHIATRIC DISORDERS

- Malingering ..... 616  
*Robert F. Gorman, M.D., F.A.C.P.*

### RADIOLOGY

- Case of the Month No. 52 ..... 619  
*Lloyd Brenden, B.S., M.S., et al.*

### SURGERY

- Orbital Floor "Blowout" Fractures  
Clinical Management ..... 621  
*Wayne W. Bixenman, M.D.*

## STATE OF THE ART

- New Vaccines on the Horizon ..... 626  
*James I. Ito, Jr., M.D.*

## EDITORIAL

- University of Arizona College of  
Medicine Admissions Procedure ..... 631  
*Andrew M. Goldner, Ph.D., et al.*

## MEDICAL HISTORY

- Extracts from the Publications of  
the Arizona Medical Association ..... 632  
*John W. Kennedy, M.D.*

## ARMA REPORTS

- ..... 635

## FUTURE MEETINGS

- ..... 646

LIBRARY  
U.C. SAN FRANCISCO

AUG 24 1981

XXXVIII, NO. 8

THE LIBRARY  
U. OF CALIF. S.F.  
ACQUISITIONS DIV.  
SAN FRANCISCO, CA. 94143

# Examine Me.

During the past several years, I have heard my name mentioned in movies, on television and radio talk shows, and even at Senate subcommittee sessions. And I have seen it repeatedly in newspapers, magazines, and yes, best-sellers. Lately, whenever I see or hear the phrases "overmedicated society," "overuse," "misuse," and "abuse," my name is one of the reference points. Sometimes even *the* reference point.

These current issues, involving patient compliance or dependency-proneness, should be given careful scrutiny, for they may impede my overall therapeutic usefulness. As you know, a problem almost always involves improper usage. When I am prescribed and taken correctly, I can produce the effective relief for which I am intended.

Amid all this controversy, I ask you to reflect on and re-examine my merits. Think back on the patients in your practice who have been helped through your clinical counseling and prudent prescriptions for me. Consider your patients with heart problems, G.I. problems, and interpersonal problems who, when their anxiety was severe, have been able to benefit from the medication choice you've made. Recall how often you've heard, as a result, "Doctor, I don't know what I would have done without your help."

You and I can feel proud of what we've done together to reduce excessive anxiety and thus help patients to cope more successfully.

If you examine and evaluate me in the light of your own experience you'll come away with a confirmation of your knowledge that I *am* a safe and effective drug when prescribed judiciously and used wisely.

For a brief summary of product information on Valium (diazepam/Roche)® , please see the following page. Valium is available as 2-mg, 5-mg and 10-mg scored tablets.



# Valium®<sup>IV</sup> diazepam/Roche

**Before prescribing, please consult complete product information, a summary of which follows:**

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other anti-depressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

**Supplied:** Valium® (diazepam/Roche) Tablets, 2 mg, 5 mg and 10 mg—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10, Prescription Paks of 50, available in trays of 10.

ROCHE

Roche Laboratories  
Division of Hoffmann-La Roche Inc.  
Nutley, New Jersey 07110

## NME...

# the "help you establish a successful practice" experts.

Our goal at National Medical Enterprises is to help you establish a comfortable and successful Primary Care practice.

Where you want it.

How you want it.

It's a goal we achieve by offering you a choice of over 60 well equipped acute care hospitals coast to coast, by offering you selected financial assistance, and by offering you management consulting when you begin your practice.

So whether you're interested in solo, partnership or a group practice, you should contact NME.

We're the experts!

For further information, contact:  
Raymond C. Prulitt, Director, Physician Relations  
National Medical Enterprises  
11620 Wilshire Blvd., Los Angeles, California 90025.

Toll-Free 800-421-7470  
or collect (213) 479-5526.

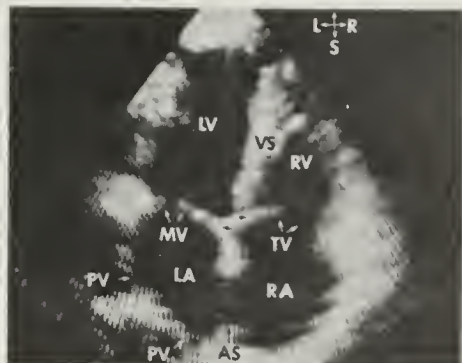
NATIONAL MEDICAL  
ENTERPRISES, INC.



"The Total Health Care Company."  
An Equal Opportunity Employer M/F

# DIAGNOSTIC ULTRASOUND

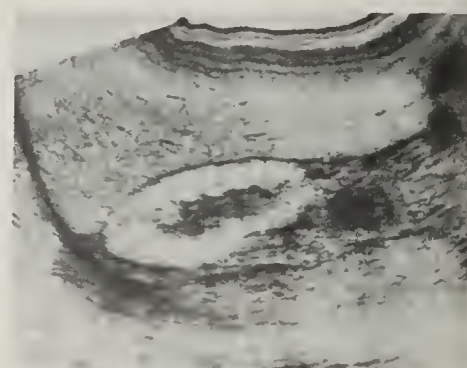
PERFORMED IN A PLEASANT ENVIRONMENT  
WITH THE ECONOMIC CONVENIENCE  
OF A PRIVATE OFFICE



4 Chamber View of Heart



Third Trimester Pregnancy



Normal Liver and Kidney

A safe non-invasive modality for evaluation of the  
Abdomen • Gravid Uterus • Heart • Eye • Thyroid • Retroperitoneum • Vascular Tree

Ben-Ora Imaging, Ltd.  
Avi Ben-Ora, M.D.  
909 E. Brill Street, Suite 210  
(602) 254-4577

Ultrasound Diagnostic Services  
Avi Ben-Ora, M.D., Med. Director  
3411 N. 5th Ave., Suite 410  
(602) 279-9375

## MEDICAL BOOKSTORE



The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

## MEDICAL BOOKSTORE

College of Medicine  
Arizona Health Sciences Center  
Tucson, Arizona 85724  
Phone: 626-6669

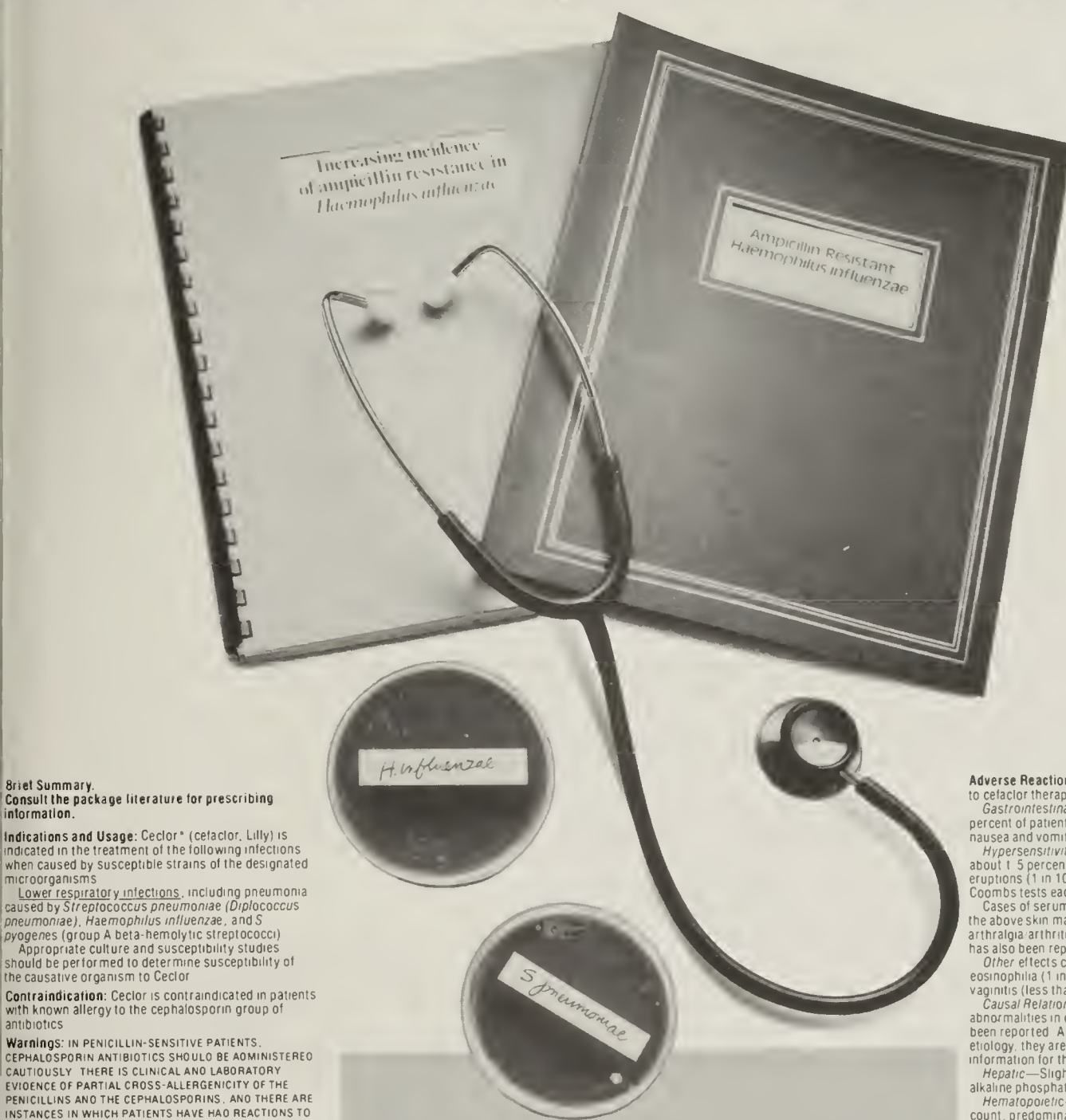
*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.



# An added complication... in the treatment of bacterial bronchitis\*



**Brief Summary.**  
Consult the package literature for prescribing information.

**Indications and Usage:** Cefclor\* (cefclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

**Lower respiratory infections,** including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor.

**Contraindication:** Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

**Warnings:** IN PENICILLIN-SENSITIVE PATIENTS. CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS TO BOTH DRUG CLASSES (INCLUDING ANAPHYLAXIS AFTER PARENTERAL USE).

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

**Precautions:** If an allergic reaction to cefclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest\* tablets but not with Tes-Tape\* (Glucose Enzymatic Test Strip, USP, Lilly).

**Usage in Pregnancy:** Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

**Usage in Infancy:** Safety of this product for use in infants less than one month of age has not been established.

**Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis\*—are sensitive to treatment with Cefclor.<sup>1-6</sup>**

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.<sup>7</sup>

## Cefclor®

### cefclor

Pulvules®, 250 and 500 mg

**Adverse Reactions:** Adverse effects considered related to cefclor therapy are uncommon and are listed below. **Gastrointestinal** symptoms occur in about 2-5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

**Hypersensitivity** reactions have been reported in about 1-5 percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients.

Cases of serum-sickness-like reactions, including the above skin manifestations, fever, and arthralgia/arthritis, have been reported. Anaphylaxis has also been reported.

**Other effects** considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

**Causal Relationship Uncertain:** Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

**Hepatic:** Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

**Hematopoietic:** Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

**Renal:** Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[1020800]

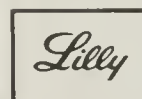
\* Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

**Note:** Cefclor\* (cefclor) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

#### References

1. Antimicrob. Agents Chemother. 8:91, 1975.
2. Antimicrob. Agents Chemother. 11:470, 1977.
3. Antimicrob. Agents Chemother. 13:584, 1978.
4. Antimicrob. Agents Chemother. 12:490, 1977.
5. Current Chemotherapy (edited by W. Siegenthaler and R. Luthy), II, 880. Washington, D.C.: American Society for Microbiology, 1978.
6. Antimicrob. Agents Chemother. 13:861, 1978.
7. Data on file. Eli Lilly and Company.
8. Principles and Practice of Infectious Diseases (edited by G. L. Mandell, Jr., R. G. Douglas, Jr., and J. E. Bennett), p. 487. New York: John Wiley & Sons, 1979.



Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.

Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630.

100061

# 5%

*In the past year,  
this company has placed  
less than five percent of its  
collectables with collection  
agencies.*

*Nothing more need be said.*



**The Anesthesia Office, Inc.**

Main Office  
Post Office Box 39429  
Phoenix, Arizona 85069  
(602) 242-1908



"Joint Life is the insurance of the '70's"

**Doctor, HBA Life's**  
**JOINT LIFE INSURANCE**  
**insures two people with only**  
**one policy, one low premium**

*with these advantages:*

**BUSINESS INSURANCE:** Two doctors, partners or associates in a professional corporation, will find this plan a low-cost way to provide funds if one of the two dies. It also may be used by husband and wife or father and son to provide funds to pay off special debts or for any of the other purposes for which life insurance may be used.

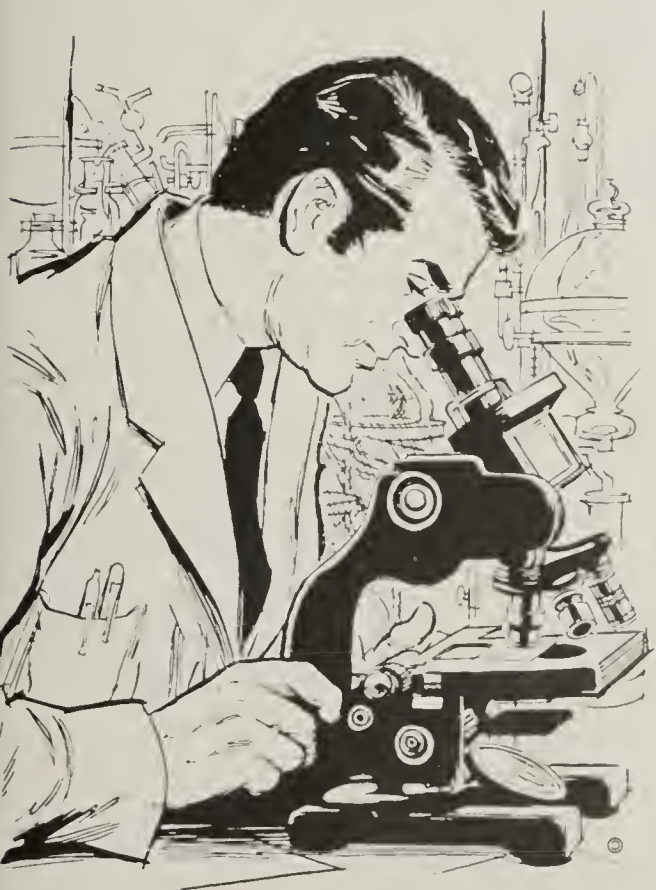
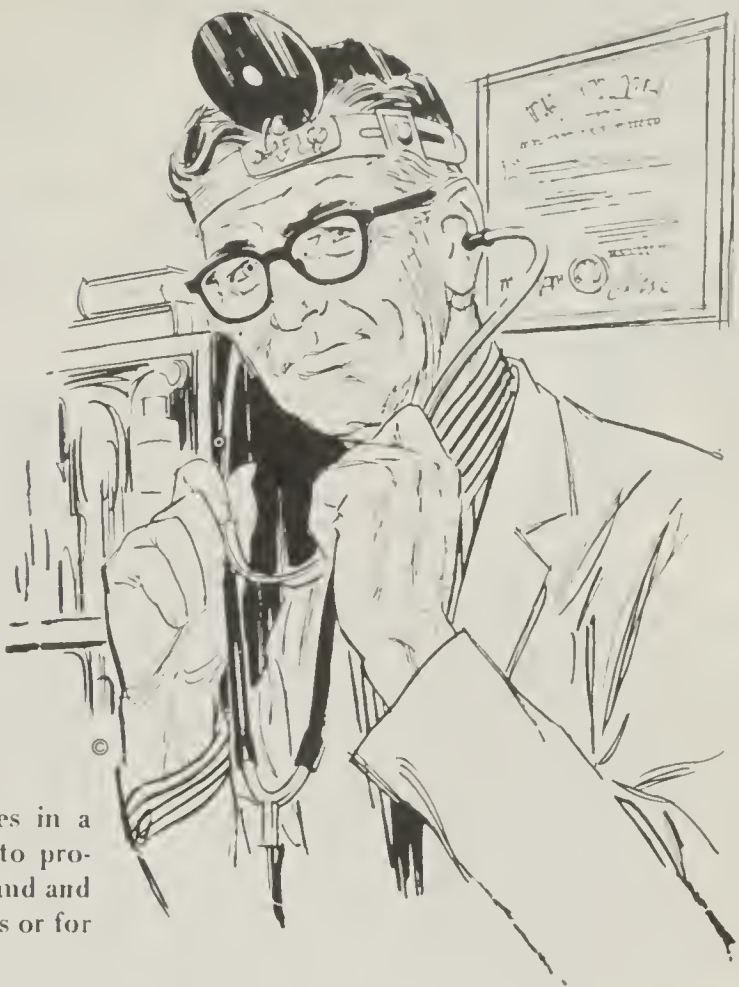
**LOWER INSURANCE AGE:** Often, one insured is somewhat younger than the other. The joint equal age can take years off the age of the older insured. The policy provides for the payment of the face amount upon the death of the first of the two insureds to die.

**GUARANTEES SURVIVOR INSURABILITY:** The surviving insured, within 90 days and prior to age 70, is guaranteed the right to purchase life insurance. If the surviving insured doesn't exercise this right and dies during this 90-day period, the conversion would automatically be made by the Company and the face amount, less the conversion premium, would be paid to his beneficiary.

**DOUBLE FOR SIMULTANEOUS DEATH:** If both insureds should die simultaneously, the sum insured upon their deaths would be paid to their beneficiaries.

**CONVERTIBLE TO SINGLE LIFE:** The Joint Life Insurance may also be converted to single insurance prior to the older insured's 60th birthday. The amount converted can be all on one life or the other or divided between the two as long as each does not take less than \$1,000 of life insurance.

An HBA Life Agent would be glad to discuss it further at your convenience.



**THE HBA LIFE**  
**INSURANCE COMPANY**

1337 N FIRST ST • PHOENIX • 258-4885

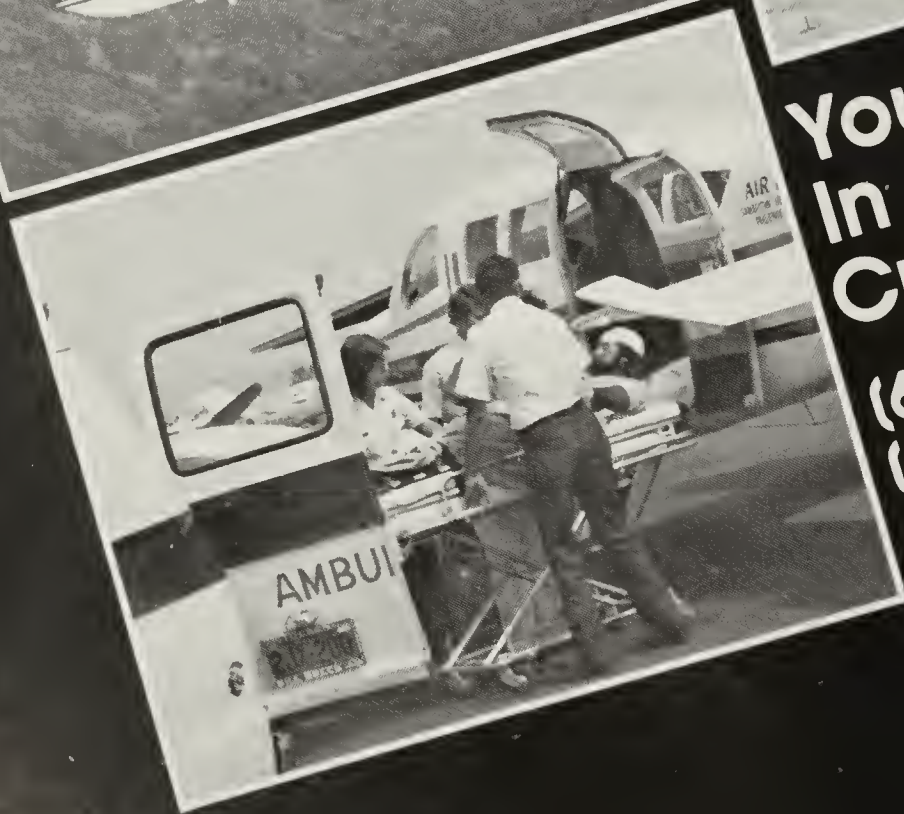
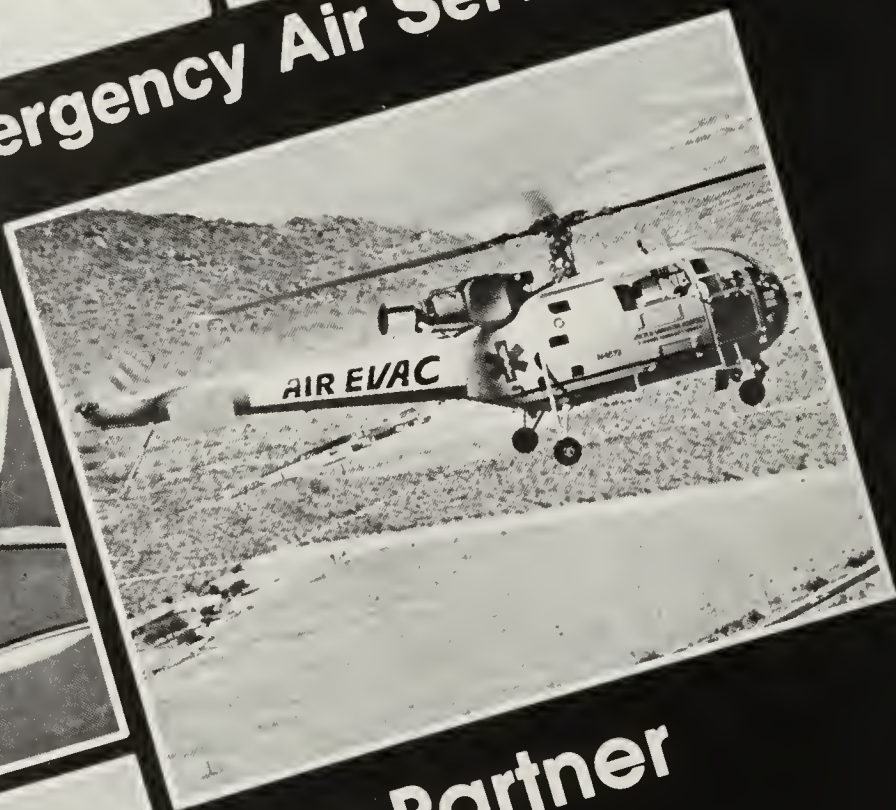
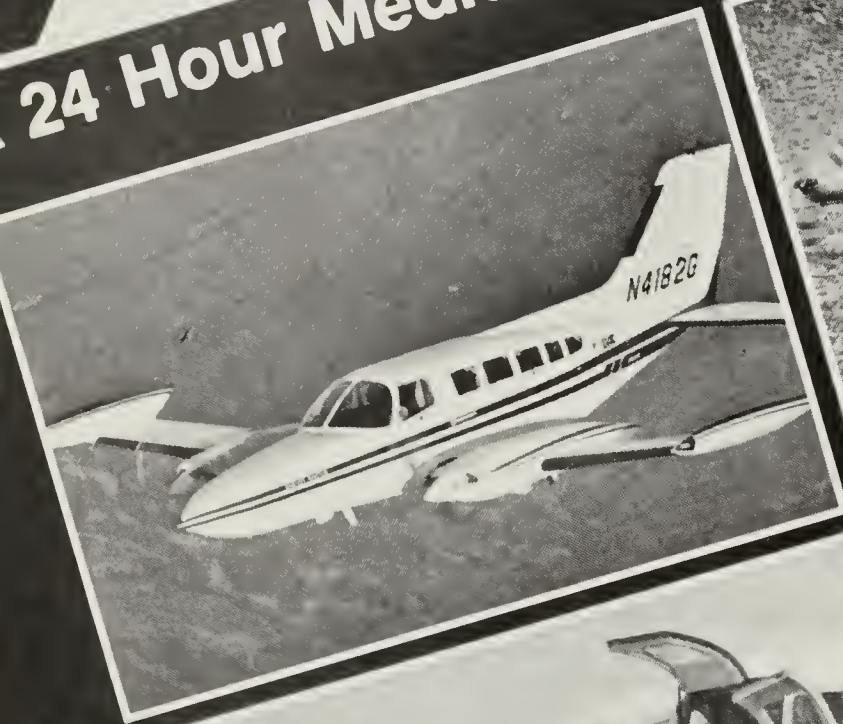
*A Local Company Serving the West Since 1944*



Lincoln Samaritan

# AIR EVAC

24 Hour Medical Emergency Air Service



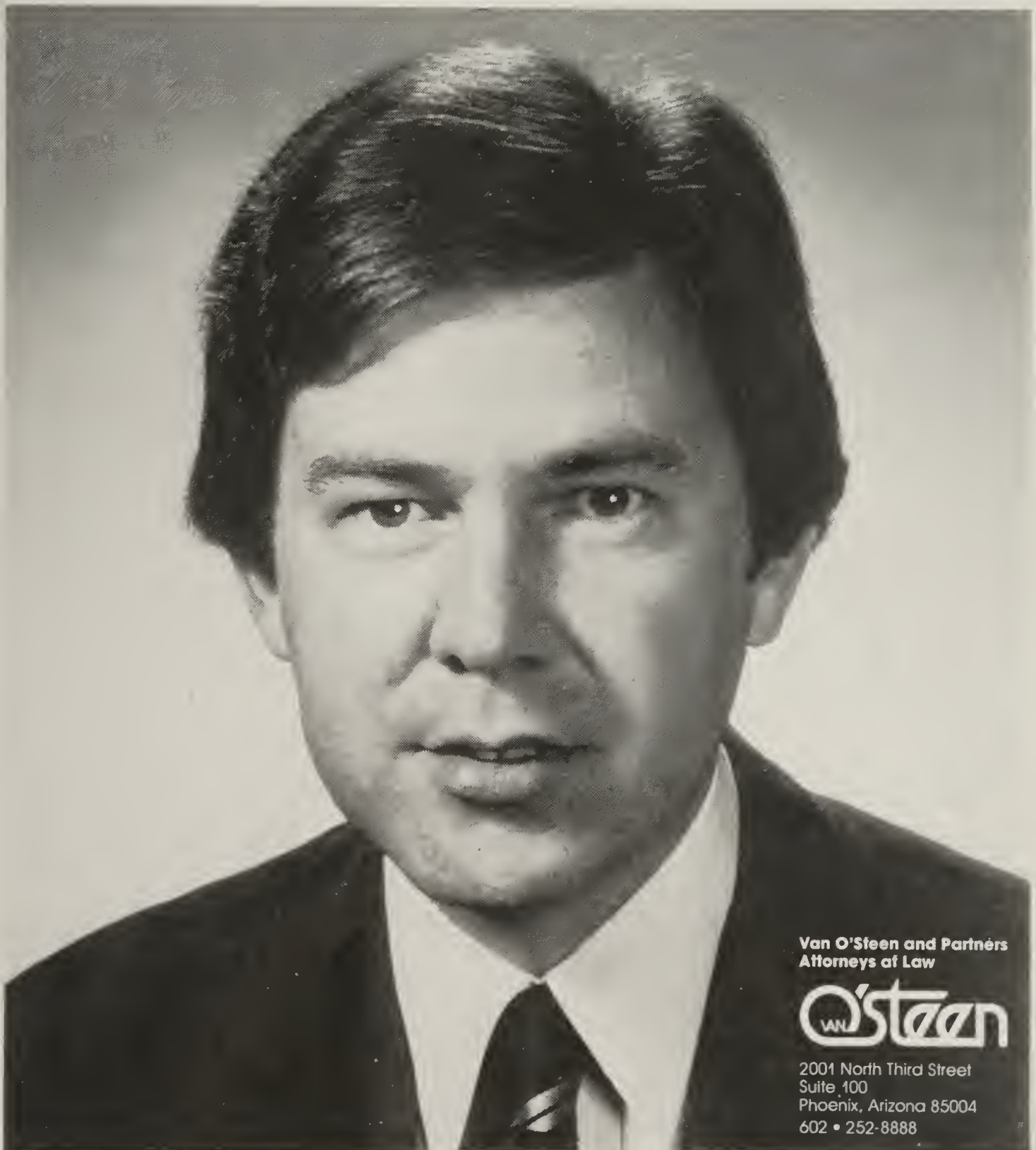
**Your Partner  
In  
Critical Care**  
**(602) A-I-R-E-V-A-C**  
**(247-3822)**

**Our name is our number**  
**Serving Arizona and the Nation**  
**Since 1969**



# What doctors should know. . . about lawyers

A physician's license to practice medicine is his or her most valuable asset. In Arizona, it can be suspended or permanently revoked by the Board of Medical Examiners based on the complaint of a single disgruntled patient. We strongly recommend that you discuss all Board inquiries with a lawyer who handles Administrative Law matters.



**Van O'Steen and Partners  
Attorneys at Law**

**Van O'Steen**

2001 North Third Street  
Suite 100  
Phoenix, Arizona 85004  
602 • 252-8888



# Our goal is to help you reach yours.

From medical school through retirement, your financial needs are continually changing. And your time to look after those needs is limited.

That's why Valley Bank has Medical Banking Specialists—trained in the financial needs of medical professionals.

Talk to us about credit and our many other services. They're outlined in our new

brochure: "Financial Services for Medical Professionals."

For more information about these services, call Jay Crawford, Medical Banking Director in Phoenix, at 261-5045. In Mesa, call Maria Evans, Medical Banking Specialist, at 261-1890. And in Tucson, call Brenda Koedyker, Assistant Vice President, at 792-7531.

**We go out of our way for you. Valley National Bank**



Member FDIC Equal Opportunity Lender



# Pioneers in Medicine For the Family



## BOOTS PHARMACEUTICALS, INC.

Operating in the U.S. since 1977, Boots is a world-wide leader in pharmaceutical research and manufacture. Boots has directed its efforts toward providing products useful in the practice of family medicine.

Some of our better known products are Lopurin™, Ru-Tuss® and Ru-Vert®. This advertisement highlights four other products particularly useful for the family.

**F-E-P CREME** • **SU-TON®** • **TWIN-K** • **TWIN-K-CI™**





For the Majority of  
Steroid-Responsive Dermatoses\*  
Seen in Family Practice

# F-E-P CREME®

(Iodochlorhydroxyquin — Pramoxine HCl — Hydrocortisone)

## The 4 in 1 Corticosteroid Cream

Anti-inflammatory, antifungal, antibacterial actions, and, uniquely, a topical anesthetic for immediate relief of the itching or burning that frequently accompanies skin problems. One size (½ ounce), one strength for ease of prescription.

\*This drug has been evaluated as possibly effective for these indications  
See prescribing information on last page of this advertisement.

For the Geriatric Patient

# SU-TON®

## Liquid Tonic

A pleasant tasting prescription tonic containing iron, vitamins, minerals, an analeptic and 18% alcohol. Ideal for those who may benefit from vitamin deficiency prevention. Just one tablespoon before each meal.

Each 45 ml (3 tablespoonfuls) contains:

|                                         |        |
|-----------------------------------------|--------|
| Pentylentetrazol.                       | 30 mg  |
| Niacin                                  | 50 mg  |
| Vitamin B-1                             | 10 mg  |
| Vitamin B-2                             | 5 mg   |
| Vitamin B-6                             | 1 mg   |
| Vitamin B-12                            | 3 mcg  |
| Choline                                 | 100 mg |
| Inositol                                | 50 mg  |
| Manganese (as Manganese Sulfate)        | 1 mg   |
| Magnesium (as Magnesium Sulfate)        | 2 mg   |
| Zinc (as Zinc Sulfate)                  | 1 mg   |
| Iron (as Ferric Pyrophosphate, Soluble) | 22 mg  |
| Alcohol                                 | 18%    |

See prescribing information on last page of this advertisement.





## For Potassium Supplementation Improved Compliance...

# TWIN-K®

Each 15 ml supplies 20 mEq of potassium ions as a combination of potassium gluconate and potassium citrate in a sorbitol and saccharin solution.

The good tasting potassium supplement  
Designed for prophylactic and therapeutic use  
with diuretics and adrenocorticoids.  
Pleasant taste and convenient dosage aid  
patient compliance.

The organic salt of potassium can be given as a  
liquid without producing significant gastric  
symptoms and without an untoward effect on  
the mucosa of the small intestine.<sup>1</sup>

Beeson-McDermott, Textbook of Medicine, 15th Ed 1979, WB Saunders Co., Philadelphia, page 1959

## In Cases with Chloride Deficiency...

# TWIN-K-CI™

Each 15 ml supplies 15 mEq of potassium ions and 4 mEq of chloride ions as a combination of potassium gluconate, potassium citrate, and ammonium chloride in a sorbitol and saccharin solution.

The good tasting potassium supplement with  
chloride

- In hypokalemic hypochloremic alkalosis, chloride ions are required. Twin-K-CI is specially formulated to be a good tasting chloride containing potassium supplement.
- Contains no potassium chloride. Twin-K-CI is a carefully balanced combination of organic potassium salts plus ammonium chloride.
- In hypochloremic patients, potassium should be provided as the chloride salt, or chloride ion must be made available in some other form, such as ammonium chloride or sodium chloride.<sup>1</sup>

See prescribing information on last page of this advertisement.





## F-E-P CREME

### DESCRIPTION

F-E-P Creme is a topical water soluble anti-inflammatory, anesthetic preparation intended for treatment of various inflammatory skin disorders. The drug contains the following active ingredients:

|                         |      |
|-------------------------|------|
| Iodochlorhydroxyquin    | 3.0% |
| Pramoxine Hydrochloride | 0.5% |
| Hydrocortisone          | 1.0% |

### INDICATIONS AND USAGE

Based on a review of this drug by the National Academy of Sciences-National Research Council and/or other information, FDA has classified the indications as follows: "Possibly" effective: Contact or atopic dermatitis; impetiginized eczema; nummular eczema; infantile eczema; endogenous chronic infectious dermatitis; stasis dermatitis; pyoderma, nuchal eczema and chronic eczematoid otitis externa; acne urtica; localized or disseminated neurodermatitis; lichen simplex chronicus; anogenital pruritus (vulvae, scroti, ani); folliculitis; bacterial dermatoses; mycotic dermatoses such as tinea (capitis, cruris corporis, pedis); moniliasis; intertrigo. Final classification of the less-than-effective indications requires further investigation.

Pramoxine Hydrochloride promptly relieves pain and itch. This compound may be used safely on the skin of those patients sensitive to the "caine" type local anesthetics.

### CONTRAINDICATIONS

Hypersensitivity to F-E-P Creme, or any of its ingredients or related compounds; lesions of the eye; tuberculosis of the skin; most viral skin lesions (including herpes simplex, vaccinia and varicella).

### WARNINGS

This product is not for ophthalmic use.

In the presence of systemic infections, appropriate antibiotics should be used.

### USE IN PREGNANCY

Topical steroids have not been reported to have an adverse effect on pregnancy. However, fetal abnormalities have been produced in pregnant laboratory animals that have been exposed to large doses of topical corticosteroids. Drugs of this class should not be used extensively during pregnancy.

### PRECAUTIONS

F-E-P Creme may be irritating to the skin in some patients. If irritation occurs discontinue therapy. Staining of clothes or hair may also occur with use of this preparation. Although systemic toxicity has not been reported with this drug, adrenal pituitary suppression is possible, especially when the drug is used extensively or kept under an occlusive dressing for a prolonged period.

Iodochlorhydroxyquin can be absorbed through the skin and interfere with thyroid function tests. Therapy with this preparation should stop at least a month before performance of these tests. The ferric chloride test for phenylketonuria (PKU) can be positive if F-E-P Creme is on the diaper or in the urine.

Prolonged use of this drug may result in an overgrowth of non-susceptible organisms requiring appropriate therapy.

### ADVERSE REACTIONS

Skin rash or hypersensitivity may occur following topical application.

The following local adverse reactions have been reported with topical corticosteroids, especially under occlusive dressings: burning, itching, irritation, dryness, folliculitis, hypertrichosis, acneiform eruptions, hypopigmentation, perioral dermatitis, allergic contact dermatitis, maceration of the skin, secondary infection, skin atrophy, striae, milaria. Discontinue therapy if untoward reactions occur.

### DOSE AND ADMINISTRATION

Apply a thin layer of the drug to affected parts 3-4 times daily.

#### Note:

1. F-E-P Creme is distributed with 3.0% iodochlorhydroxyquin for use when antibacterial/antifungal activity is desired.
2. F-E-P Creme (Plain) is the regular formulation, but without iodochlorhydroxyquin.

Both of these preparations contain pramoxine hydrochloride, which has topical anesthetic properties. Pramoxine is not chemically related to benzoic acid or amide type topical anesthetics. Patients can tolerate pramoxine although they may be sensitive to other "caine" type of topical or local anesthetics.

### HOW SUPPLIED

F-E-P Creme 1/2 ounce (15 gm) tubes NDC 0524-0026-51

F-E-P Creme Plain 1/2 ounce (15 gm) tubes NDC 0524-0025-51

Federal law prohibits dispensing without a prescription.

July 1980

## SU-TON®

### DESCRIPTION

Forty-five milliliters of SU-TON contain the following ingredients:

|                                         |        |
|-----------------------------------------|--------|
| Pentylenetetrazol                       | 30 mg  |
| Niacin                                  | 50 mg  |
| Vitamin B-1                             | 10 mg  |
| Vitamin B-2                             | 5 mg   |
| Vitamin B-6                             | 1 mg   |
| Vitamin B-12                            | 3 mcg  |
| Choline                                 | 100 mg |
| Inositol                                | 50 mg  |
| Manganese (as Manganese Sulfate)        | 1 mg   |
| Magnesium (as Magnesium Sulfate)        | 2 mg   |
| Zinc (as Zinc Sulfate)                  | 1 mg   |
| Iron (as Ferric Pyrophosphate, Soluble) | 22 mg  |
| Alcohol                                 | 18%    |

### INDICATIONS AND USAGE

SU-TON contains pentylenetetrazol which may be helpful in the older patient as an analeptic agent when mental confusion and memory defects are present. SU-TON also contains vitamins, trace minerals, and iron, for those patients who may benefit by preventing the development of a deficiency.

### CONTRAINDICATIONS

Epilepsy, convulsive disorders or known history of sensitivity to any of the listed active ingredients.

### WARNINGS

The safety of this preparation during pregnancy and lactation has not been established. Use of this drug requires that the physician evaluate the potential benefits of the drug against any possible hazard to the mother and child.

### PRECAUTIONS

Although there are no absolute contraindications to pentylenetetrazol, it should be used with caution in epileptic patients or those known to have a low convulsive threshold or a focal brain lesion. Caution should be exercised when treating patients with high doses of SU-TON who have heart disease. While pentylenetetrazol does not act directly on the myocardium, the results from central vagal stimulation could cause bradycardia.

### ADVERSE REACTIONS

Pentylenetetrazol in high doses may produce toxic symptoms typical of central nervous system stimulants, which act on the higher motor centers and the spinal cord. Convulsions resulting from this drug are spontaneous and are not induced by external stimuli. They usually last for several minutes and are followed by profound depression and respiratory paralysis. Death has been reported from the ingestion of 10 grams of pentylenetetrazol.

### DRUG ABUSE

Drug dependence has not been reported with SU-TON.

### OVERDOSAGE

Signs and symptoms of acute overdose may be due principally from overstimulation of the central nervous system and from excessive vasodilatation with resulting autonomic nervous system imbalance. The symptoms may include the following: vomiting, agitation, tremors, hyperreflexia, sweating, confusion, hallucinations, headache, hyperpyrexia, tachycardia. Treatment consists of appropriate supportive measures. If signs and symptoms are not too severe and the patient is conscious, gastric evacuation may be accomplished by induction of emesis or gastric lavage.

Intensive care must be provided to maintain adequate circulation and respiratory exchange.

### DOSE AND ADMINISTRATION

One tablespoonful (15 ml) 3 times a day 20-30 minutes before meals. This drug is not for use in children under 12 years of age.

### HOW SUPPLIED

Bottles of 473 ml (16 fl oz)

NDC 0524-0015-16

Federal law prohibits dispensing without prescription.

February 1980

## TWIN-K

### DESCRIPTION

Each 15 milliliter (one tablespoonful) supplies 20 mEq of potassium ions as a combination of potassium gluconate and potassium citrate in a sorbitol and saccharin solution.

### INDICATIONS AND USAGE

For use as oral potassium therapy in the prevention or treatment of hypokalemia which may occur secondary to diuretic or corticosteroid administration. It may be used in the treatment of cardiac arrhythmias due to digitalis intoxication.

### CONTRAINDICATIONS

Severe renal impairment with oliguria or azotemia, untreated Addison's disease, adynamia episodica hereditaria, acute dehydration, heat cramps and hyperkalemia from any cause. This product should not be used in patients receiving aldosterone antagonists or triamterene.

### WARNINGS

TWIN-K (potassium gluconate and potassium citrate) is a palatable form of oral potassium replacement. It appears that little if any potassium gluconate-citrate penetrates as far as the jejunum or ileum where enteric coated potassium chloride lesions have been noted. Excessive, undiluted doses of TWIN-K may cause a saline laxative effect.

To minimize gastrointestinal irritation, it is recommended that TWIN-K be taken with meals or diluted with water or fruit juice. A tablespoonful (15 ml) in 8 ounces of water is approximately isotonic. More than a single tablespoonful should not be taken without prior dilution.

### PRECAUTIONS

Potassium is a major intracellular cation which plays a significant role in body physiology. The serum level of potassium is normally 3.8-5.0 mEq/liter. While the serum or plasma level is a poor indicator of total body stores, a plasma or serum level below 3.5 mEq/liter is considered to be indicative of hypokalemia.

The most common cause of hypokalemia is excessive loss of potassium in the urine. However, hypokalemia can also occur with vomiting, gastric drainage and diarrhea.

Usually a potassium deficiency can be corrected by oral administration of potassium supplements. With normal kidney function, it is difficult to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution since, usually, the exact amount of the deficiency is not accurately known. Checks on the patient's clinical status and periodic EKG and/or serum potassium levels should be made. High serum potassium levels may cause death by cardiac depression, arrhythmias or arrest.

In patients with hypokalemia who also have alkalosis and a chloride deficiency (hypokalemic hypochloremic alkalosis), there will be a requirement for chloride ions. TWIN-K is not recommended for use in these patients.

### ADVERSE REACTIONS

Symptoms of potassium intoxication include paresthesias of the extremities, flaccid paralysis, listlessness, mental confusion, weakness and heaviness of the legs, fall in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of the QRS complex, changes of the ST segment and tall peaked T waves.

TWIN-K taken on an empty stomach in undiluted doses larger than 30 ml can produce gastric irritation with nausea, vomiting, diarrhea, and abdominal discomfort.

### OVERDOSAGE

The administration of oral potassium supplements to persons with normal kidney function rarely causes serious hyperkalemia. However, if the renal excretory function is impaired, potentially fatal hyperkalemia can result. It is important to note that hyperkalemia is usually asymptomatic and may be manifested only by an increased serum potassium concentration with or without EKG changes. Treatment measures include:

1. Elimination of potassium containing drugs or foods.
2. Intravenous administration of 300 to 500 ml/hr of a 10% dextrose solution containing 10-20 units of crystalline insulin per 1000 milliliters.
3. Correction of acidosis.
4. Use of exchange resins or peritoneal dialysis.

In treating hyperkalemia, it should be noted that patients stabilized on digitalis can develop digitalis toxicity when the serum potassium concentration is changed too rapidly.

### DOSAGE AND ADMINISTRATION

The usual adult dosage is one tablespoonful (15 ml) in 6-8 fl. ounces of water or fruit juice, two to four times a day. This will supply 40 to 80 mEq of potassium ions. The usual preventative dose of potassium is 20 mEq per day while therapeutic doses range from 30 mEq to 100 mEq per day. Because of the potential for gastrointestinal irritation, undiluted large single doses (30 ml or more) of TWIN-K are to be avoided.

Deviations from this schedule may be indicated, since no average total daily dose can be defined, but must be governed by clinical observation for clinical effects.

### HOW SUPPLIED

Bottles of 1 pint (16 fl oz)

NDC 0524-0021

### CAUTION

Federal law prohibits dispensing without prescription.

July 1980

## TWIN-K-CI™

### DESCRIPTION

Each 15 ml (one tablespoonful) supplies 15 mEq of potassium ions and 4 mEq of chloride ions as a combination of potassium gluconate, potassium citrate, and ammonium chloride, in a sorbitol and saccharin solution.

### INDICATIONS

For use as oral potassium therapy in the prevention or treatment of hypokalemia which may occur secondary to diuretic or corticosteroid administration. It may be used in the treatment of cardiac arrhythmias due to digitalis intoxication.

Potassium and chloride are usually the salts of choice in the treatment of hypokalemia since chloride and potassium deficiency are likely to be associated with each other.

### CONTRAINDICATIONS

Severe renal impairment with oliguria or azotemia, untreated Addison's disease, adynamia episodica hereditaria, acute dehydration, heat cramps and hyperkalemia from any cause. This product should not be used in patients receiving aldosterone antagonists or triamterene.

### WARNINGS

TWIN-K-CI is a palatable form of oral potassium replacement. Excessive, undiluted doses of TWIN-K-CI may cause a saline laxative effect.

To minimize gastrointestinal irritation, it is recommended that TWIN-K-CI be taken with meals or diluted with water or fruit juice. A tablespoonful (15 ml) in 8 ounces of water is approximately isotonic. More than a single tablespoonful should not be taken without prior dilution.

### PRECAUTIONS

Potassium is a major intracellular cation which plays a significant role in body physiology. The serum level of potassium is normally 3.8-5.0 mEq/liter. While the serum or plasma level is a poor indicator of total body stores, a plasma or serum level below 3.5 mEq/liter is considered to be indicative of hypokalemia. The most common cause of hypokalemia is excessive loss of potassium in the urine. However, hypokalemia can also occur with vomiting, gastric drainage and diarrhea.

Usually a potassium deficiency can be corrected by oral administration of potassium supplements. With normal kidney function, it is difficult to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution since, usually, the exact amount of the deficiency is not accurately known. Checks on the patient's clinical status and periodic EKG and/or serum potassium levels should be made. High serum potassium levels may cause death by cardiac depression, arrhythmias or arrest.

In patients with hypokalemia who also have alkalosis and a chloride deficiency (hypokalemic hypochloremic alkalosis), there will be a requirement for chloride ions. TWIN-K-CI is recommended for use in these patients.

### ADVERSE REACTIONS

Symptoms of potassium intoxication include paresthesias of the extremities, flaccid paralysis, listlessness, mental confusion, weakness and heaviness of the legs, fall in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of the QRS complex, changes of the ST segment and tall peaked T waves.

TWIN-K-CI taken on an empty stomach in undiluted doses larger than 30 ml can produce gastric irritation with nausea, vomiting, diarrhea, and abdominal discomfort.

### OVERDOSAGE

The administration of oral potassium supplements to persons with normal kidney function rarely causes serious hyperkalemia. However, if the renal excretory function is impaired, potentially fatal hyperkalemia can result. It is important to note that hyperkalemia is usually asymptomatic and may be manifested only by increased serum potassium concentration with or without EKG changes.

Treatment measures include:

1. Elimination of potassium containing drugs or foods.
2. Intravenous administration of 300 to 500 ml/hr of a 10% dextrose solution containing 10-20 units of crystalline insulin per 1000 milliliters.
3. Correction of acidosis.
4. Use of exchange resins or peritoneal dialysis.

In treating hyperkalemia, it should be noted that patients stabilized on digitalis can develop digitalis toxicity when the serum potassium concentration is changed too rapidly.

### DOSAGE AND ADMINISTRATION

The usual adult dosage is one tablespoonful (15 ml) in fluid ounces of water or fruit juice, two to four times a day. This will supply 30 to 60 mEq of potassium ions and 8 to 16 mEq of chloride ions. The usual preventative dose of potassium is 20 mEq per day while therapeutic doses range from 30 mEq to 100 mEq per day. Because of the potential for gastrointestinal irritation, undiluted large single doses (30 ml or more) of TWIN-K-CI are to be avoided.

Deviations from this schedule may be indicated, since no average total daily dose can be defined, but must be governed by clinical observation for clinical effects.

HOW SUPPLIED Bottles of 1 pint (16 fl oz)

NDC 0524-0092

MANUFACTURED & DISTRIBUTED BY

**Boots Pharmaceuticals, Inc.**

Shreveport, Louisiana 71106

**Pioneers in Medicine For the Family**







## We've got the prescription for your communications needs.

Mountain Bell has trained a team of specialists in the medical profession. Because doctors and medical professionals have unique communications needs. And their own set of problems.

Our medical specialists understand those problems. They study your daily patient load, staff requirements, and information management areas. They help implement mechanization through time-sharing of computer terminals. And design voice and data communications systems tailored to fit a private practice, or the collective needs of clinics and group practices.

One of the systems we've developed for you is the Horizon® communications system. In addition to the advanced calling features available on larger, more costly PBX equipment, the Horizon system gives you Dial Dictation and Loudspeaker Paging access. Plus Intercom and Speakerphone capabilities. So you minimize time spent by support personnel on placing and receiving phone calls. While speeding exchange of information.

The Horizon communications system is just one example of how our team members can meet the communications needs of your practice. But they can tell you more. Because they've taken the time to learn the medical profession. And they're backed by all the resources of the Bell System.

Let the Mountain Bell specialists in the medical profession give you the remedy to your communications needs.

Call toll-free 1-800-525-2323 (in Colorado, call 1-800-332-2351). Mountain Bell.

\* Registered Trademark of AT&T Company

**The knowledge business**



# sponsored group insurance

As a member of the Arizona Medical Association, you can take advantage of life, health and accident insurance selected to meet your needs, with the savings available through group insurance.

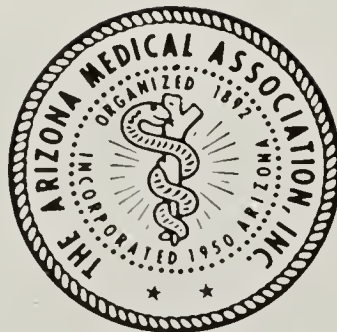
The Arizona Medical Association has provided its members with sponsored insurance programs for over 25 years.

The programs currently available are: disability, term life (for members and their spouses), defendant's reimbursement, accidental death and overhead expense.

Companies and policies are selected to provide coverage and service that meets a professional's needs and standards.

The Arizona Medical Association provides supervision of the administration of these programs as needed to insure that they continue to merit your support.

## ARIZONA MEDICAL ASSOCIATION



life, health & accident insurance

administered by

HEALTH AGENCIES OF THE WEST, INC.

local service by

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200, Phoenix, Arizona 277-6672  
or 630 Craycroft, Tucson, Arizona 85711 745-0793





## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully bound books. Choose from 30 different colors of durable Library Buckram

**\$14.00 per volume, (name imprint.75)**

**\$15.50 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

**Free** local pickup and delivery on 10 volumes or more

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338

Wickenburg has been an exciting meeting site since 1868.

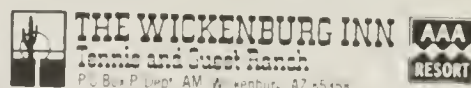
### Where have you been?

In the friendly pioneer tradition of Western hospitality the Wickenburg Inn invites you to a secluded rustic modern tennis and guest ranch just 60 miles northwest of Phoenix.

The pleasing difference you'll find — endless sunshine, clear desert mountain air, cactus covered hills, trail rides, steak fires — is the same world that greeted the first Wickenburg rendezvous in 1868.

Our casitas, ranch lodge, pool, 11 acrylic courts, stables and complete meeting facilities blend beautifully into a majestic Old West setting for seminars, conferences and executive board meetings for up to 75 people.

To reserve the perfect setting for your best meeting ever, contact our Sales Director at (602) 684-7811.



## INSTITUTE FOR HUMAN SERVICES, INC.

Drug Abuse Treatment Unit  
St. Luke's Hospital Medical Building  
421 North 18th Street, Suite 103  
Phoenix, Arizona 85006  
(602) 257-8089

*Henri A. Moyal, M.D., Medical Director • Harriette Lurie, Drug Abuse Coordinator*

- The Drug Abuse Treatment Unit provides specific care for individuals addicted to narcotics, either street drugs or major pain relieving drugs.
- The program's goals are to provide awareness and insight that facilitate psychological adjustment and allow the patients to meet personal and social responsibility and eventually to achieve a drug free state.
- Our services include psychotherapy: individual, family, marital and group. Inpatient care is available through St. Luke's Hospital facilities.
- For further information regarding the Drug Abuse Treatment Unit, please call our offices at 257-8089.



## Ventricular Ectopy vs Aberrant Conduction:

### The Problem, The Theory, and some Practice

Brendan Phibbs, M.D.

Editor:  
Kenneth B. Desser, M.D.

#### The Problem:

The ECG records ventricular complexes .12 seconds or more in width.

#### Possible Answers:

Wide complexes may represent aberrant conduction of supraventricular impulses or ventricular ectopic firing.

#### Distinction:

Often difficult, sometimes impossible.

#### The Consequences:

The importance of distinguishing between ventricular ectopic discharge and aberrant supraventricular conduction hardly needs re-emphasis. The physician contemplating a "wide beat" tachycardia must decide whether to use digitalis preparations or lidocaine, whether the arrhythmia is dangerous or benign, and whether it connotes organic heart disease or simply disordered function. Ventricular ectopic beats in the setting of an acute ischemic episode may well be life threatening and always call for treatment; supraventricular beats can usually be ignored.

The distinction between ventricular ectopy and aberrant conduction when it can be made is electrocardiographic: *physical examination is of no value.* Findings such as cannon A-waves and variable first heart sounds are common to both ventricular and junctional tachycardias.

From: Kino Community Hospital, 2800 East Ajo Way, Tucson, Arizona 85713. Dr. Phibbs is Chief of Medicine and Director of Cardiology.

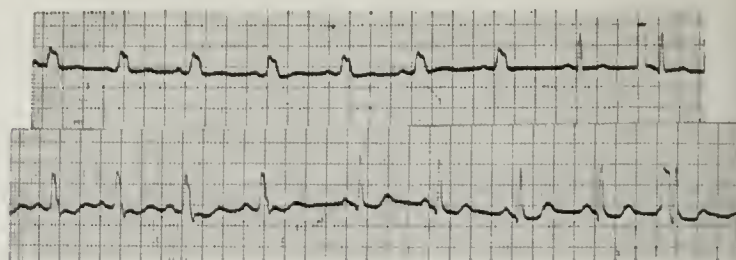


Figure 1

Rate-dependent Aberrancy — Left bundle branch block appears at a rate of about 77; it disappears at a rate of 75. The LBB configuration is characteristic.

#### Some Electrocardiographic Principles:

Aberrancy should only be diagnosed when a pathophysiologic basis for aberrant conduction exists. Ventricular ectopic discharge is diagnosed by exclusion when the conditions producing aberrancy do not exist or it is diagnosed absolutely when ventricular fusion can be demonstrated.

#### Types of Aberrancy:

1. Left or right bundle branch block represent the extreme form of aberrancy.

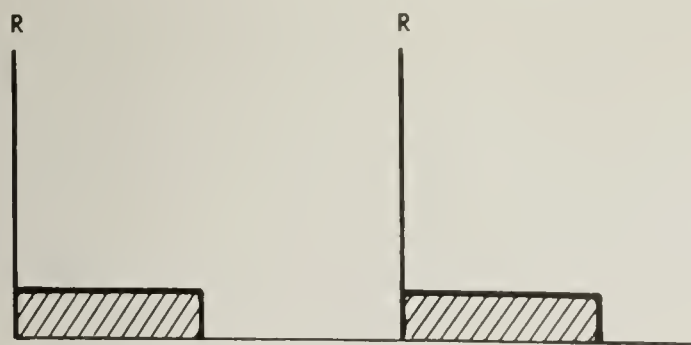
2. Block of either fascicle of the left bundle will produce aberrancy with "hemi-block" characteristics.

3. Delay in the more peripheral arborizations of the ventricular conducting system may produce any of a variety of "non-specific" QRS deformities.

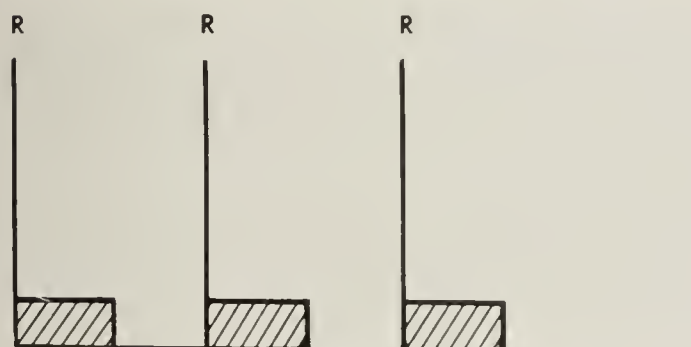
a. *Rate-dependent aberrancy:* (Figure 1) This is the simplest type of aberrancy to understand. It means that some part of the ventricular conducting system has a prolonged refractory period and therefore cannot conduct above some fixed rate. For example, a normal QRS might be present at a rate of 78 and bundle branch block might appear at a rate of 80 only to disappear again when the rate fell below 78. (There is one odd circumstance about this kind of aberrancy: the cycle length needed to restore normal conduction will often be longer than the cycle length of the normally conducted beats preceding the rate-dependent aberrancy. This is probably an effect of the delayed activation of the terminal portions of the bundle branch system on the blocked side.) A rate-dependent aberrancy will have a left bundle branch configuration eight times out of ten with about the same frequency; it connotes organic heart disease.

b. *Ashman aberrancy:* (Figure 2) It is surprising how few physicians really understand the Ashman phenomenon or apply it in their analysis of arrhythmias. The Ashman type of aberrancy rests on two physiologic reservations: 1) The refractory period following any beat is directly proportional to its distance from the beat ahead if it or, in other words, the slower the rate, the longer the refractory period after each beat. 2) When the ventricular rhythm is irregular, the refractory period is set one beat at a time, depending on the distance of that beat from the preceding one. Imagine a sequence of three





The slower the heart rate, the longer the refractory period in the conducting tissues



As the heart rate speeds, the refractory period shortens



The Ashman phenomenon is the result of this rate-related change in the refractory period; when a short R-R follows a long R-R, the third beat encounters the refractory period set by the preceding long R-R and will be aberrantly conducted

Figure 2  
The Ashman Phenomenon

ats, the first two far apart and second and third close together. The refractory period after the second beat will be prolonged, because of its distance from the first beat. The third beat, however, comes after a short interval and it will encounter the refractoriness set by the long period between the first and second beats. Therefore, the third beat will be aberrantly conducted. In other words, the Ashman type of aberrancy can be evoked when an aberrant beat is noted as the third in a long RR—short RR sequence. The ratio of R-1—R-2—R-3 necessary to produce aberrancy will be relatively constant at any particular time in a given individual. Ashman aberrancy will have a right bundle branch configuration about eighty percent of the time and is commonly found in the absence of organic heart disease. Phase 4-dependent aberrancy or bradycardia-dependent aberrancy is an extremely rare phenomenon and is only

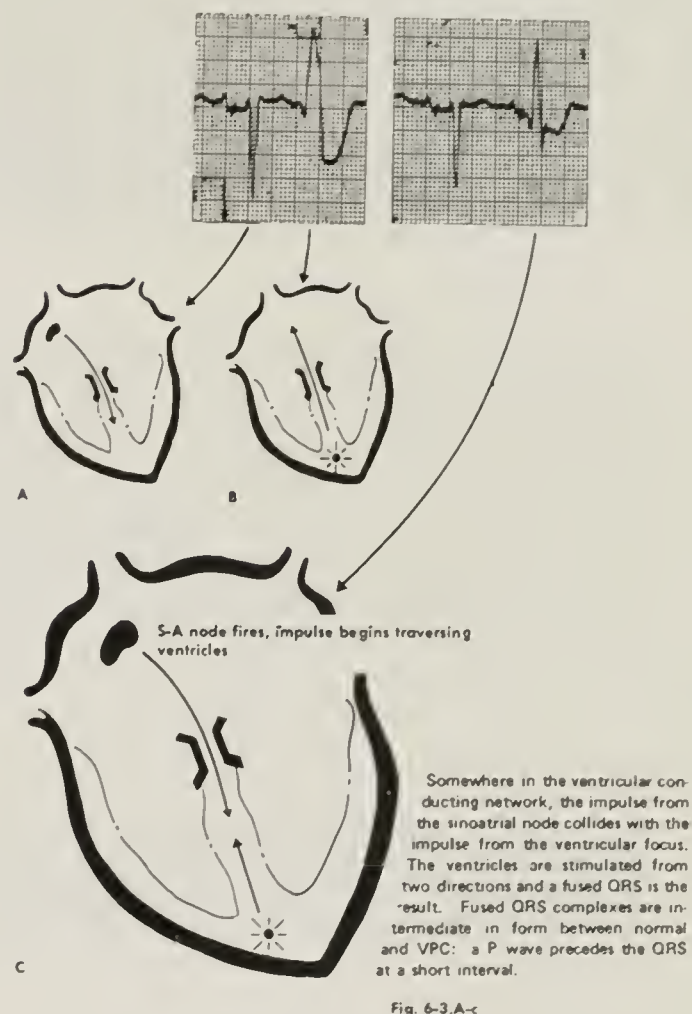


Fig. 6-3, A-c

Figure 3  
Mechanism of fusion (acknowledgement — "The Cardiac Arrhythmias," B. Phibbs, C.V. Mosby Co.)

mentioned here in passing. Sometimes at very slow rates certain of the ventricular conducting tissues will undergo diastolic depolarization; i.e., will lose their negative potential and become less responsive to the passage of an exciting impulse. In this kind of aberrancy, beats that arrive after a given period will be aberrantly conducted while those which arrive earlier may be conducted normally.

d. *Fusion or Dressler beats:* At times, a ventricular ectopic impulse will discharge just after a supraventricular impulse has begun invading the ventricles. The two impulses will meet or "fuse" somewhere in the ventricular conducting system, producing a hybrid QRS, intermediate in form between the normal ventricular complex and the ventricular ectopic beat. Two impulses can meet or fuse in the ventricles only if one of them is ventricular in origin and the other supraventricular, hence the presence of fusion beats is a very accurate sign of ventricular ectopic firing. (Figure 3)

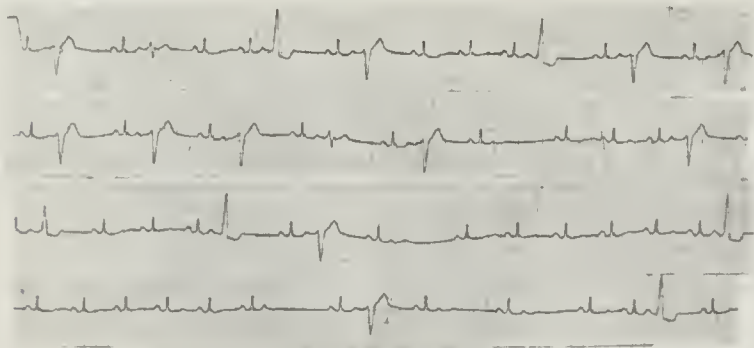


Figure 4

### Morphology:

Marriot<sup>1</sup> among others has conducted elegant studies attempting to use the morphology of wide QRS complexes to identify ventricular ectopic firing in contrast to aberrantly conducted supraventricular beats. There is no question that certain morphologies give an increased statistical likelihood of one diagnosis or the other, but the exceptions to the rules are sufficiently frequent to suggest that this kind of identification should be used chiefly for statistical purposes; it is difficult to reduce it ad hominem. When morphology is used as a guide to the differentiation between ventricular ectopy and aberrant conduction, there will be an error of ten to twenty percent in most clinical settings.

### Problems and Practice:

Active learning is always better than passive; try applying the principles above to some problems.

**Problem I.** Figure 4 illustrates a normal sinus rhythm interrupted by frequent wide ventricular complexes; are these ventricular ectopic beats or aberrantly conducted supraventricular impulses?

**ANSWER:** Look carefully at the morphology of the T-wave preceding each wide complex and note that it is wide and jagged while the T-waves of the normal sinus impulses *not* followed by a wide QRS complex are almost iso-electric. Obviously, there is a P-wave hidden in each of these deformed T-waves and the wide impulses are aberrantly conducted premature atrial beats. Note that the aberrancy may have either a left or right bundle branch configuration.

**First principal:** When a premature atrial beat is followed by a wide ventricular complex at a "conducting" interval; i.e., .12 to .20 seconds, the wide ventricular complex is clearly the result of aberrant conduction of the atrial impulse. This diagnosis may present a problem when a premature P-wave is hidden in the preceding T-wave as in this case; be sure to look for deformed T-wave morphology in the sinus beat preceding any wide ventricular complex.

**Problem II.** (Figure 5) Lead V-1 is recorded during runs of tachycardia; two distinct wide QRS configurations are apparent in the short runs of rapid rhythm. Do these

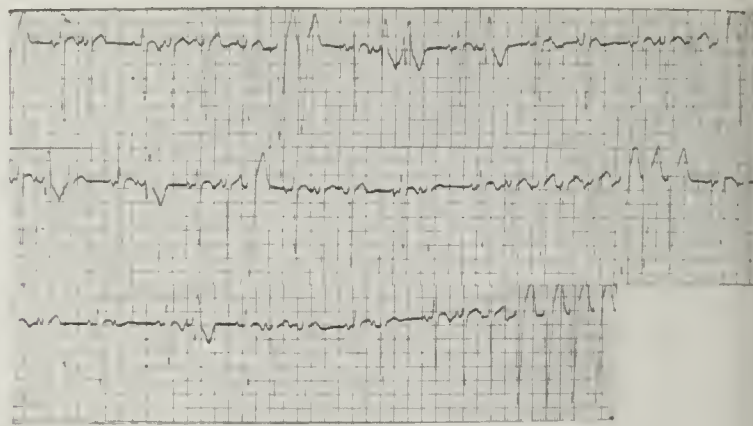


Figure 5

represent ventricular tachycardia from two foci? Or runs of supraventricular tachycardia with two types of aberrancy?

**ANSWER:** This is an excellent example of co-existence of the two basic types of aberrancy—rate dependent and "Ashman."

**First observation:** The first beats in each run of tachycardia are clearly preceded by P-waves and P-waves can be discerned in the later beats of the tachycardia, although they tend to become lost in preceding T-waves.

Both left and right bundle branch configurations are apparent in the series of wide beats. With sustained rapid firing, a left bundle branch configuration appears as the tachycardia continues; this is typical of rate-dependent aberrancy with its characteristic left bundle branch configuration.

When a right bundle branch configuration appears, it follows an Ashman pattern; that is, when there is a long RR followed by a short one, the aberrancy is of the right bundle branch type. Sometimes this aberrancy persists for two beats but often disappears in only one. The first three beats in the second strip illustrate the Ashman phenomenon in classic fashion; the aberrant right bundle branch configuration is present in the second beat, while the third is normally conducted. This is the classic "second beat in the run" type of aberrancy since the shortening RR readjusts the refractory period to prevent normal conduction in the third and in succeeding beats of the tachycardia.

**Problem III.** (Figure 6) This strip presents runs of "wide beat tachycardia." Some wide beats are preceded by P-wave, some are not.

**ANSWER:** The first two beats in each series are preceded by P-waves at fixed intervals; this is obviously a normal sinus rhythm with bundle branch block at a rate of about 100. A rapid rhythm with a rate of 150 then takes over for four or five beats. These ventricular complexes are identical in configuration to the sinus beats preceding them. The conclusion therefore is that the rapid beating represents junctional tachycardia with bundle branch block.

*Always use sinus beats when you can find them as a guide to QRS morphology. If a premature beat has a QRS morphology identical to that of the sinus beats, it must be*



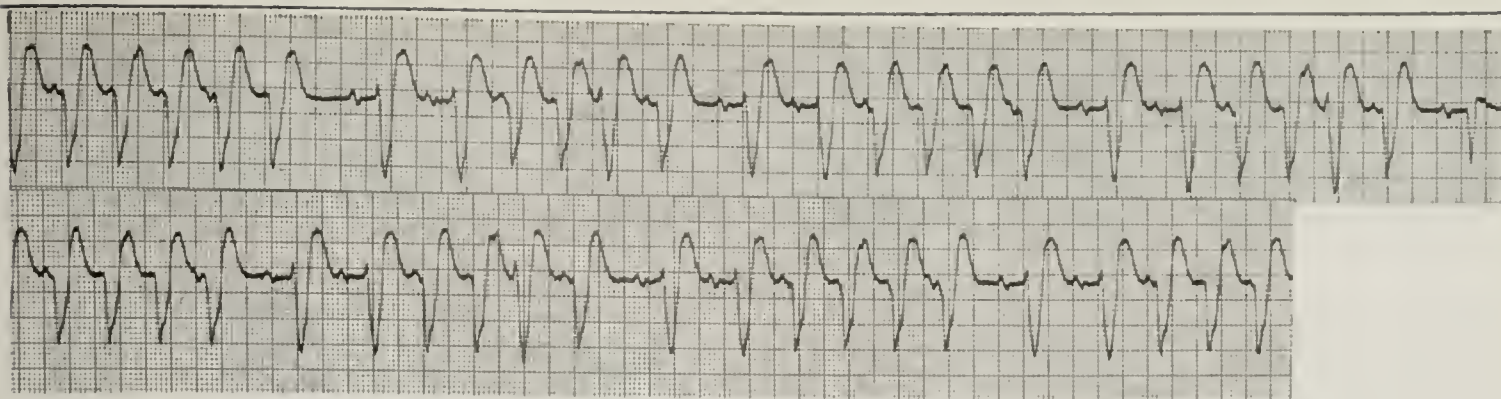


Figure 6

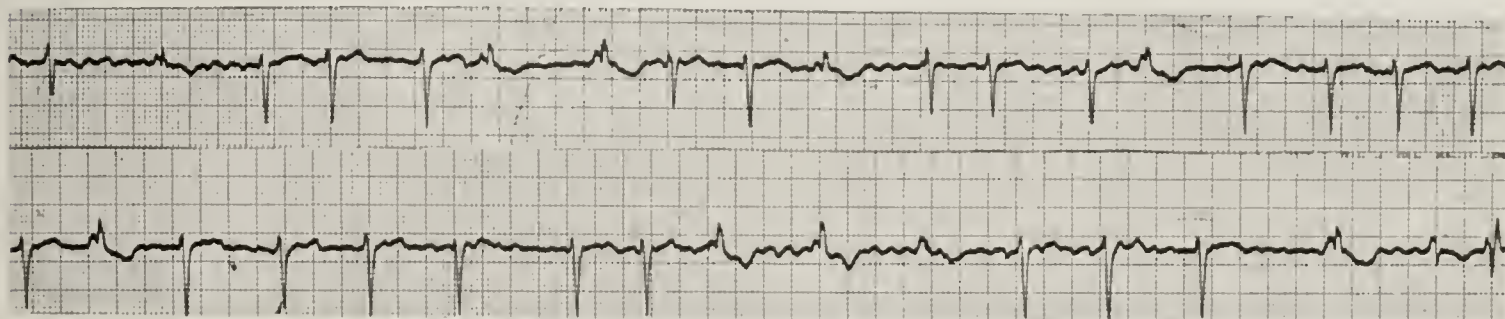


Figure 7

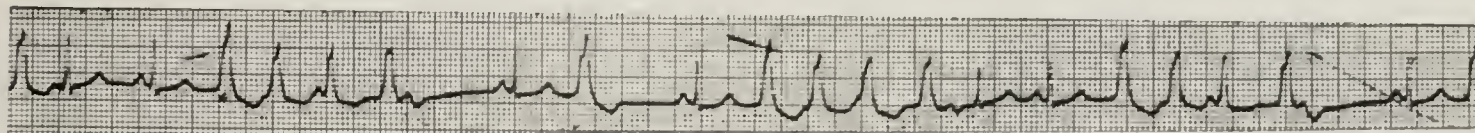


Figure 8

supraventricular in origin.

**Problem IV,** (Figure 7) This is obvious atrial fibrillation interrupted by frequent wide ventricular complexes. Are these aberrantly conducted impulses from the fibrillating atria or ventricular ectopic beats?

**ANSWER:** The beats in this tracing with an RSR' appear without any constant linkage to the preceding narrow arrow conducted ventricular complexes. In other words, they seem to be arising from some independent rhythm.

They cannot be explained on the basis of rate-dependent aberrancy since they remain wide at slow rates; they cannot be explained on the basis of an Ashman phenomenon since they do not fulfill the long R—short RR criteria. By exclusion, these must be ventricular ectopic beats rather than aberrantly conducted supraventricular impulses. This represents an intermittent, accelerated idioventricular rhythm interrupting atrial fibrillation. The appearance of this relatively slow ventricular rhythm connotes a high degree of AV block with complete AV dissociation when the idio-ventricular rhythm is present.

**Problem V.** (Figure 8) This is a classic illustration of the problem of short runs of "wide beat" tachycardia. Are these ventricular in origin?

**ANSWER:** The two beats marked with arrows give the answer with complete accuracy. It is important to notice that the atrial rhythm is dissociated from the wide beat tachycardia; that is, the sinus P-waves go "marching through" independent of the ectopic rhythm. If the ectopic rhythm is not too fast, a sinus impulse may fortunately occur at just the right time between discharges of the ectopic focus to "sneak through" and capture a single beat. If the ectopic focus is ventricular, there may be fusion of the sinus impulse and the ventricular ectopic focus as illustrated here and the diagnosis is established beyond question. The two beats indicated are preceded by P-waves at a short distance; the ventricular complexes are narrower than the wide beats that flank them but they are wider than the conducted sinus beats in the other part of the tracing. These are obviously fusion or Dressler beats and the ventricular origin of this arrhythmia is thus established beyond question. The fact that narrow QRS complexes are produced by sinus capture at the very end of some of these runs of tachycardia are further evidence that aberrancy is not producing the wide QRS complexes since the narrow QRS complexes came at the same rate, thereby ruling out rate-dependent aberrancy as an explanation.



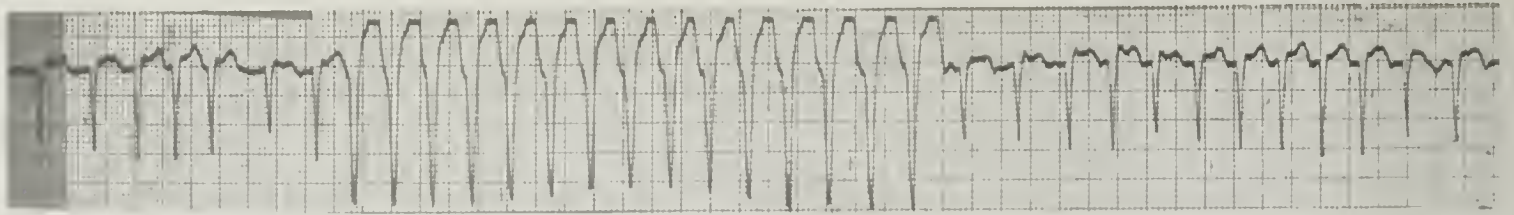


Figure 9

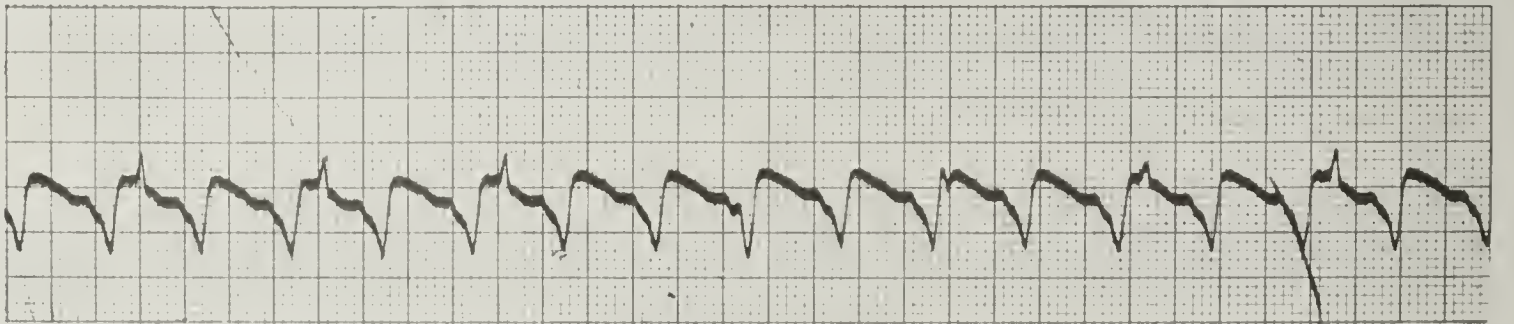


Figure 10

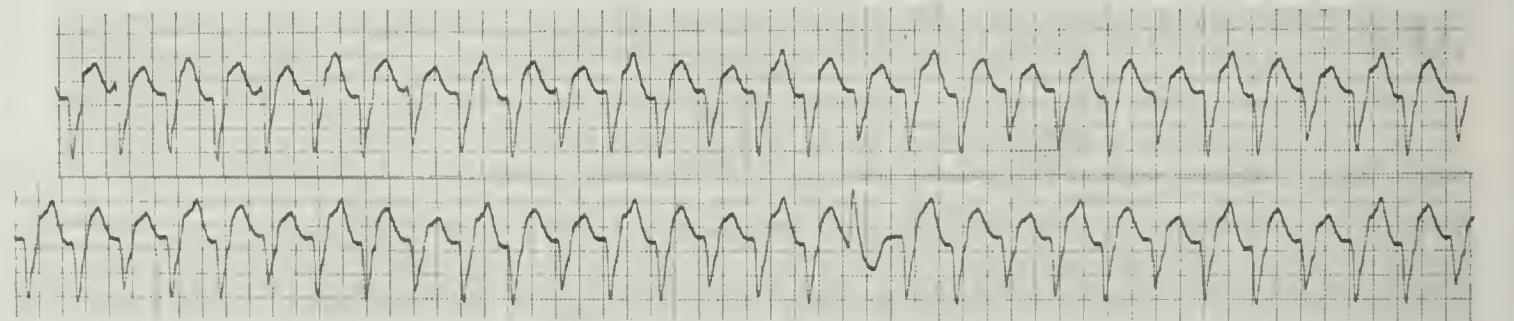


Figure 11

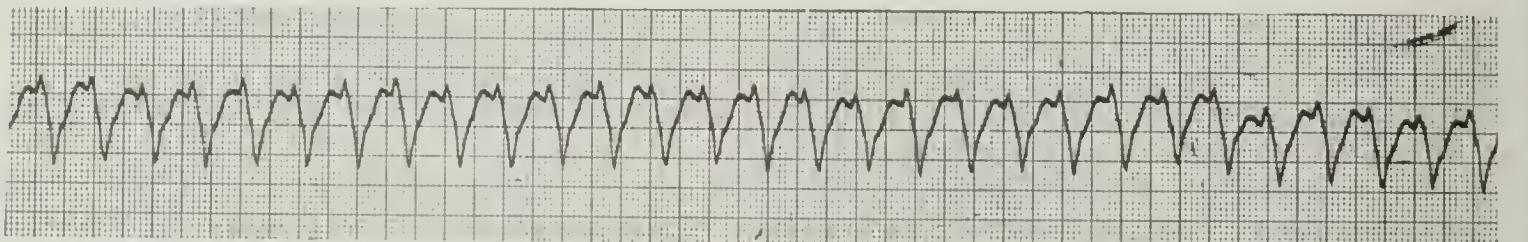


Figure 12

**Problem VI.** (Figure 9) Here is a common and often dangerous problem when atrial fibrillation is interrupted by a rapid "wide beat" tachycardia. This patient was digitalized; the possibility of digitalis toxic ventricular tachycardia interrupting atrial fibrillation raises the gravest therapeutic questions.

The diagnosis of this tachycardia is based on two observations: in the first place, the tachycardia is completely regular while the atrial fibrillation produces a grossly irregular rhythm in the flanking parts of the strip. It is hardly conceivable that conduction from fibrillating atria would suddenly produce a completely regular rhythm. In the second place, the atrial fibrillation sometimes produces a rate equal to the rate of the wide beat tachycardia without aberrant conduction and hence rate-dependent aberrancy cannot

be invoked as a cause of the wide QRS complexes. The conclusion is that this is a true ventricular tachycardia interrupting atrial fibrillation.

**Problem VII, VIII, and IX.** (Figures 10,11,12) These are three variations of "wide beat tachycardia" the defied diagnosis. It is not possible to say whether these are, in fact, ventricular tachycardia or junctional tachycardia with aberrant conduction.

Therefore, treatment must be based on the more dangerous possibility and these must all be presumed to be ventricular tachycardia.

Note in Problem VII the sharp spike-like impulses that appear intermittently; these are retrograde atrial complexes conducted from the ventricles. In Problem tracing VIII, the T-wave morphology varies from beat to beat, also almost certainly an effect of retrograde



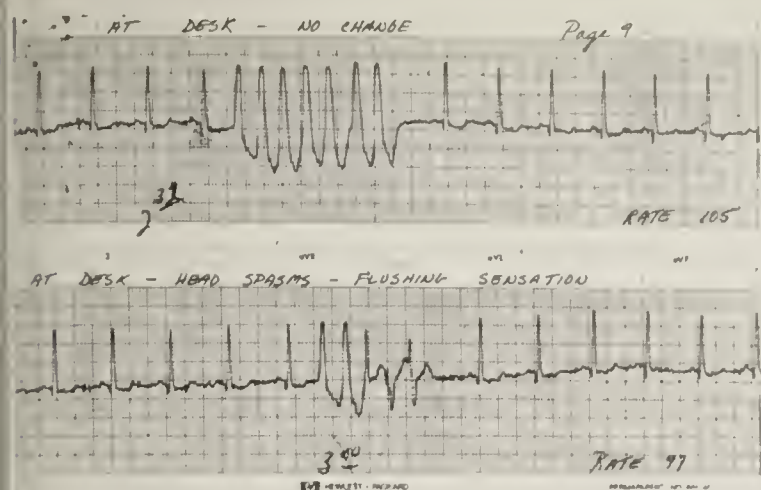


Figure 13

duction to the atria. This rhythm is interrupted by what appears to be a VPC; it is quite possible for two foci to fire in the ventricles and the presence of a VPC does not rule out the ventricular origin of the tachycardia. **Problem X.** (Figure 13) A variation of the Ashman phenomenon (tracing courtesy of Drs. J. Silverman and John Carroll). The wide beat tachycardia in the top strip might well be a ventricular tachycardia; if this tracing were all that was available, ventricular tachycardia would be the only possible presumptive diagnosis. In strips two and three, however, it is clear that the beats become narrower, even though the rate remains identical and that in the terminal portions of the tachycardias in these two strips, the QRS complexes are completely normal.

**Significance:** In the presence of very rapid rates, Ashman reset of the refractory period will sometimes take several seconds. Because of incomplete penetration of the bundle branch systems, some portions may remain refractory on the basis of the initial Ashman relationship for five to ten beats as in this example. The real clue here is the fact that the rate of the narrow beats and the wide beats is absolutely identical which means, of course, that they must be coming from the same place. These are runs of supraventricular tachycardia with initial Ashman aberrancy and subsequent "resetting" of the refractory period with normal intraventricular conduction.

#### Summary:

A logical approach to the treatment of "wide beat" tachycardias:

1. If the tachycardia is intermittent, look for one of the physiologic bases for aberrancy in the onset or end of the rapid rhythm. Do the wide QRS complexes appear only at a more rapid rate? Do they appear as a result of an Ashman relationship?
2. Look for hidden P-waves in the T-waves preceding the wide beats.
3. If a dissociated atrial rhythm is present, look for capture beats with fusion as evidence of ventricular ectopic firing.
4. If a wide beat tachycardia appears without any of these features, *the only safe presumptive diagnosis is ventricular*

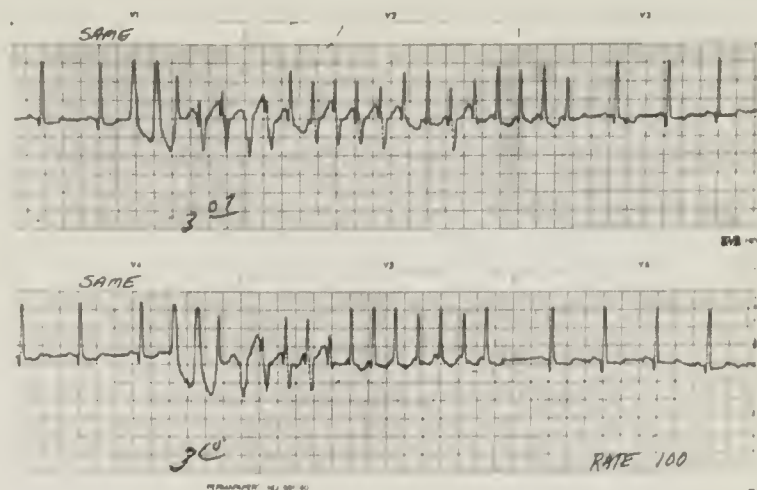


Figure 14

*tachycardia and treatment should be planned accordingly.* In pragmatic terms, if lidocaine is administered by mistake to what is, in fact, a supraventricular tachycardia, no great harm has been done; on the other hand, administering digitalis preparation to a ventricular tachycardia may well be lethal.

When the distinction between supraventricular and ventricular arrhythmia cannot be established, it is well to remember that quinidine works equally well on supraventricular or ventricular arrhythmias and that electroversion is acceptable in either case.

## Editorial Comment

Kenneth B. Desser, M.D.

This article demonstrates the skill of a non-invasive clinical electrocardiographer in the deductive analysis of complex arrhythmias. Dr. Phibbs is obviously a master in such technics. Three additional points are worthy of attention: 1) An *atrial* premature beat can trigger an ectopic or re-entrant *ventricular* tachycardia. In such a case the atrial impulse is propagated to a portion of the ventricular specialized tissue which is refractory and conducts to another area which is not refractory. The impulse may then re-enter the previously refractory tissue and produce a wide QRS tachycardia. The arrhythmia may therefore appear to start with an atrial premature beat and be misdiagnosed as a supraventricular tachycardia — this is *rare*. 2) A ventricular premature beat may conduct retrograde to the A-V node or via a bypass tract to the atrium and reflect back to the ventricle with aberration thereby simulating a ventricular tachycardia — this is *rare*. 3) A wide QRS tachycardia may occur at rates between 150 and 300/minute and display *irregularity*. In this case the patient may have atrial fibrillation with conduction through an anomalous tract which allows bypass of the A-V node which usually blocks the many impulses arising from the atrium — this is *not rare*. The administration of digitalis may shorten the refractory period in the anomalous tract and actually increase the

ventricular response. When confronted with this puzzler intravenous procaineamide represents the current treatment of choice since it delays conduction in the bypass pathway. As succinctly stated by Dr. Phibbs, intravenous lidocaine will usually not make any of the above arrhythmias worse and in a symptomatic subject electrical cardioversion will preclude any unnecessary delay. Unfortunately the practicing physician will frequently not have the luxury of a prior electrocardiogram in order to aid diagnosis. It is wise to provide a patient with ventricular pre-excitation (Wolff-Parkinson-White) syndrome a wallet sized copy of the baseline electrocardiogram or at least a caution card stating the diagnosis.

*Supported by the Biomedical Research Memorial Fund, Inc.*

#### References

1. Marriott HJL, Sandler IA: Criteria old and new for differentiating between ectopic ventricular beats and aberrant ventricular conduction in the presence of atrial fibrillation. *Progress in Cardiovascular Diseases* 9:18, 1966.
2. Sandler IA, Marriott HJL: The differential morphology of anomalous ventricular complexes of right bundle branch block type in lead V-1: Ventricular ectopy vs. aberration. *Circulation* 31:551, 1965.



*Chest Medicine*

## The Relationship among Silica, Silicosis, and Lung Carcinoma

Michael D. Lebowitz, Ph.D.

#### Editors:

Richard J. Lemen, M.D.

Bernard Levine, M.D.

John J. Seidenfeld, M.D.

Arizona has many surface and underground miners with significant silica exposures. Many of them are also exposed to diesel fumes, and many of them smoke. Nevertheless, silicosis is not reported as a major cause of mortality in Arizona. The extent of morbidity is unknown. However, physicians who see miners who have developed lung cancer may question whether the silica exposure, alone or with diesel fume exposure or smoking, may not have been a responsible factor in the pathogenesis of the malignancy. There may even be legal ramifications of such cases. This paper reviews the question.

There have been many epidemiological and experimental studies to determine if there is any relationship between silica exposure, silicosis, and lung carcinoma. Some of the epidemiological and occupational-medical studies of coal miners in Europe date back to the last century. Since those initial studies there have been many similar studies in coal miners in various countries (Britain, U.S.A., Russia, South Africa and others), as well as in hematite, other iron-related and copper miners, and various foundry and other industrial workers, all who have exposure to silica.<sup>1,2</sup>

From: University of Arizona Health Sciences Center, Division of Respiratory Sciences, (Westend Laboratories), Tucson, Arizona 85724. Dr. Lebowitz is Professor of Internal Medicine. This work was supported by NHLI SCOR Grant #HL14136.



## Epidemiology Studies

In general, there is no conclusive evidence of a definite relationship between silicosis and lung carcinoma; in fact, there is conflicting evidence in this regard. Morgan and Seaton<sup>1</sup> say there is a trend for more lung cancer in coal workers and state this may be the result of industrial pulmonary disease such as silicosis. They also indicate that, in some studies, the standard mortality ratio for lung cancer is also increased for coal miners. However, their own studies in bituminous miners in the U.S., (in which there is a lower silica content in the dust exposure) indicate that lung cancer appears less often than expected; this is similar to the lower rates shown in two of the British studies<sup>1</sup> (pp. 64, 160). Silica exposure with iron exposure leading to siderosilicosis appears to be associated with increased lung cancer morbidity and mortality in iron/hematite miners, but this relationship may not necessarily be dependent on the silicosis aspect<sup>1</sup> (pp. 234, 377). It is probably the radon associated with the iron. Caswell et al<sup>3</sup> studied coal workers in which 5% of the mineral dust was silica. There was an increased rate of lung cancer, which could have been due to the effects of radon exposure. These authors believe that silica exposure combined with smoking may produce an increased risk of lung cancer, although this was unproven in their study.

Goldstein and Webster<sup>4</sup> studied Bantu and White coal workers in South Africa and found an increased incidence of lung cancer in both Bantu and White with dust lesions; but, these increases were not statistically significant. In the Bantu, the rate in those with dust lesions was 0.7% compared to 0.2% in those without dust lesions, while in the Whites, the comparable rates were 4.7% and 3.8%. The specific silica content of the dust was not indicated.

Moskronosova et al.,<sup>5</sup> studied causes of mortality in silicotics among copper miners and workers from a fire brick plant. They could not see any increase in the risk of development of neoplasms due to silicosis *per se* in miners. The mortality rates from pulmonary cancers for the males in the fire brick plant considerably exceeded the expected values. It is suggested by them that although the dust *per se* is probably not carcinogenic, the silicotic pneumosclerosis, however, is likely to be a precancerous pathological condition, enhancing the deposition of carcinogenic tobacco smoke compounds in the lung; smoking males who worked in the fire brick plant had a much higher rate of lung carcinoma than either nonsmoking males or the general population. Smokers in the copper mine also had slightly higher rates.

Del Fabbro et al<sup>6</sup> examined lung cancer mortality by age and region in Italy and found lung cancer rates to be associated with silicosis, but by region. They also examined specific cases in occupations where there were silica exposures. They concluded that there appeared to be some increased risk in lung carcinoma in association with silicosis, but that the relationship was not overwhelming.

## Clinical Studies

Levy and Margolis<sup>7</sup> reported associations between atypical epithelial hyperplasia, relatively undifferentiated epidermoid- and adeno-carcinomas, atypical epithelial proliferation, and diffuse pulmonary fibrosis with silicosis and mixed dust pneumoconiosis. However, progressive massive fibrosis in coal miners may closely simulate a carcinoma, especially when solitary, and thus, accurate diagnosis of carcinoma is often difficult without exploratory surgery.<sup>2</sup>

The incidence of lung cancer was studied in 302 cases of silicosis, and the results were compared with the postmortem findings in cases without silicosis by Otto and Hinuber,<sup>8</sup> in Germany. They observed an increase in the incidence in bronchogenic carcinoma mainly involving persons with a moderate degree of silicosis exposure. Mittman's data (in 2) also shows a distribution of lung cancer favoring lower grade silicosis. Fruehling et al (in 2) proposed that silicotic complication in lung cancer patients distinctly shifts the cancer age downward.

Lung cancer in silicotics shows a usual distribution of histologic types. It does occur more frequently in the hilum and upper lobes, as in asbestosis.<sup>2</sup>

Schroeder<sup>9</sup> has also reported on the disorders of the pulmonary circulation including decreased number of vessels in patients with silicosis and bronchial carcinoma.

Schautz, and Puccinni and Dickshtein (in 2), found occurrences of epithelial metaplasias in the bronchial mucosa of individuals with silicosis coexisting with bronchogenic carcinoma. They asserted that the development of such precancerous stages in the bronchial mucosa were stimulated by chronic bronchitis, which according to these authors, is regularly associated with even minor silicotic pulmonary changes.

## Pathogenetic Mechanisms

It is possible that silicotic pulmonary scars with their locally disrupted vascular supply and their phagocytic accumulations may indeed favor the development of cancers in the surrounding tissue, because of their tendency to arrest and store foreign matter which is either inhaled, or after ingestion, or parenteral introduction, has entered the circulating blood. The close topographic relationship between fibrotic silicotic scars and carcinomas suggests an association,<sup>2</sup> but further work is still required to prove or disprove such a relationship.

Kolev and Bakardjiev<sup>10</sup> found that mature hyalinized silicotic nodules resisted cancer invasion and cancerous necrobiotic changes, both of which do occur in immature silicotic tissue and fibrotic tissue. They state that extensive fibrosis and hyalinization may interfere with adequate action of chemical carcinogens which might be inbedded in such cellular matrices in advanced fibrotic silicosis. Furthermore, any microcarcinomas formed in such an ill-vascularized tissue may not proliferate or survive in the face of the progressive fibrosis characterizing advanced silicosis<sup>2</sup> (p. 6).

Both Allison<sup>11</sup> and Levy et al<sup>7</sup> indicate that silica and siderosilica particles are cytotoxic and lead to increased fibrosis in animal models. Wagner and Wagner (in 11) and Druckrey and Schmael (in 2) found supporting evidence of this in rat studies of silica particles. However, their experiments indicated that a chronic mechanic irritation alone does not appear to provide carcinogenic stimuli *per se*, as did Hueper's studies.<sup>2</sup>

### Conclusion

It is my opinion that no definitive etiological relationship has been proven between silicosis and lung carcinoma, although there is some data to support such a relationship.

### References

1. Morgan WKC, Seaton A: *Occupational Lung Diseases* W. B. Saunders Co., Philadelphia, pp. 62, 159, 160, 234, 377, 381, 1975.
2. Hueper WC: *Occupational and Environmental Cancers of the Respiratory System* Springer-Verlag, New York, pp.2-6, 1966.
3. Caswell G, et al: In: *Inhaled Particles* W. H. Walton (ed.), Old Working, p. 713, 1971.
4. Goldstein B, Webster I: Coal workers' pneumoconiosis in South Africa. *Ann N Y Acad Sci* 221:306-315, 1974.
5. Moskronosova KA, et al: Interrelationship between silicosis and malignant neoplasms. *Vopr Onkol* 19:3-8, 1973. (Engl. Abst.; Russian).
6. Del Fabbro V, et al: Further study of the problem of silicosis and bronchopulmonary cancer. *Lotta Tubere* 40:241-280, 1970.
7. Levy SA, Margolis I: Sidersilicosis and atypical epithelial hyperplasia. *J Occup Med* 16:796-799, 1974.
8. Otto H, et al: The incidence of emphysema, tuberculosis and bronchogenic carcinoma in silicosis. *Prax Pneumol* 26:145-158, 1972. (Engl. Abst.; German).
9. Schroeder H: Disorders of pulmonary circulation and their quantitative determination in patients with silicosis, silicotuberculosis and bronchial carcinoma. *Nucl Med Suppl (Stutig)* 9:220-222, 1971 (German).
10. Kolev K, Bakardjiev T: Interrelation between silicosis and lung cancer. Preliminary report. *Medicine del Lavoro (Milano)* 64:241-244, 1973 (Italian).
11. Allison AC: Pathogenic effects of inhaled particles and anitgens *Ann NY Acad Sci* 221:299-308, 1974.



*Seminars in  
Dermatology*

## Pityrosporum Folliculitis A Common Acneiform Condition of Middle Age

Lindie K. Borton, M.D.

Robert Allen Schwartz, M.D., M.P.H.

### Editors:

Ronald C. Hansen, M.D.

Robert A. Schwartz, M.D.

### Introduction

Acne-like eruptions which are clearly not *acne vulgaris* include a large number of often perplexing conditions. One common one is infrequently discussed; it is called *pityrosporum folliculitis*. We present a patient with this condition and review the literature on this eruption, which is caused by the yeast form of the fungus which induces in its mycelial form another common condition, *tinea versicolor*.

### Report of a Case

A 71-year-old man presented to Dermatology Clinic in August 1980 with a three-month history of a pruritic skin rash involving his face and chest. The patient had been followed previously for lichen simplex chronicus of the lower extremities and treated successfully with fluocinonide 0.025% ointment. In August 1980 he presented with an erythematous scaling eruption involving his scalp, ears, face and upper chest. He was diagnosed as having seborrheic dermatitis and treated with antiseborrheic tar shampoo three times a week and hydrocortisone cream one percent twice a day to the face and chest. In February 1981 the patient returned for follow-up with clinical improvement of the scaling lesions. At that time, however, he had a two-week history of a pruritic papular eruption on his chest.

From: Department of Dermatology, University of California School of Medicine, San Francisco. Reprint requests to Dr. Borton, Department of Medicine, Mount Zion Hospital and Medical Center, P.O. Box 7921, San Francisco, California 94120.



Past medical history was remarkable for peptic ulcer disease beginning in the 1950s and eventually requiring gastrojejunostomy. The patient had a history of hypertension for several years which was well-controlled on hydrochlorothiazide. He had a history of numbness in both lower extremities. The patient's most recent admission to our hospital was in February 1980 for a gastrointestinal bleed. At that time the physical examination was remarkable for the following findings: Blood pressure was 150/70 without orthostasis. The fundi showed arteriolar narrowing and arteriovenous nicking. There was a III/VI systolic murmur, loudest in the aortic area, radiating to the apex and both carotid arteries. Carotid pulses were full with mildly delayed upstrokes. Upper extremity pulses were full and symmetrical. Right lower extremity pulses were not palpable distal to the femoral pulse. Left lower extremity pulses were diminished but present. There was a left femoral bruit. The remainder of the physical examination findings were unremarkable. Endoscopy revealed diffuse gastritis and a phytobezoar. The patient's history was negative for diabetes mellitus, steroid or antibiotic use. Medications included hydrochlorothiazide 100 mg daily, potassium chloride 20 meq daily, Kanulase® two tablets three times daily, magnesium and aluminum hydroxide suspension 30 cc one hour after meals and at night, and iron sulfate 325 mg daily. The patient had been followed by our medical clinic for control of his hypertension and follow-up of phytobezoar. His most recent laboratory examination was in November 1980 and revealed a serum glucose of 9 mg% with normal serum electrolytes and complete blood count.

The patient had no knowledge of cutaneous lesions in any of his relatives. Family history was negative for diabetes mellitus.

The physical examination in February 1981 revealed an erythematous perifollicular papular eruption of the anterior chest.

#### Histopathology

Histology was significant for a follicular plug in the epidermis in which fungal spores, but no hyphae were seen. (Figures 1,2). There was a perivascular superficial and deep infiltrate composed primarily of lymphocytes and histiocytes and a few plasma cells. No eosinophils were seen. The infiltrate impinged upon and extended into a follicular apparatus on several of the levels obtained. No fungal hyphae were observed in any of these levels.

#### Comment

Pityrosporum folliculitis as a clinical entity has been recognized with increasing frequency in recent years. It may be an important consideration in the differential diagnosis of acneiform eruptions. Other clinical entities which should be included in this differential are listed in Tables 1 and 2. The pertinent clinical features of this disease are as follows: The disease occurs in adult patients, an older population than that of acne vulgaris.

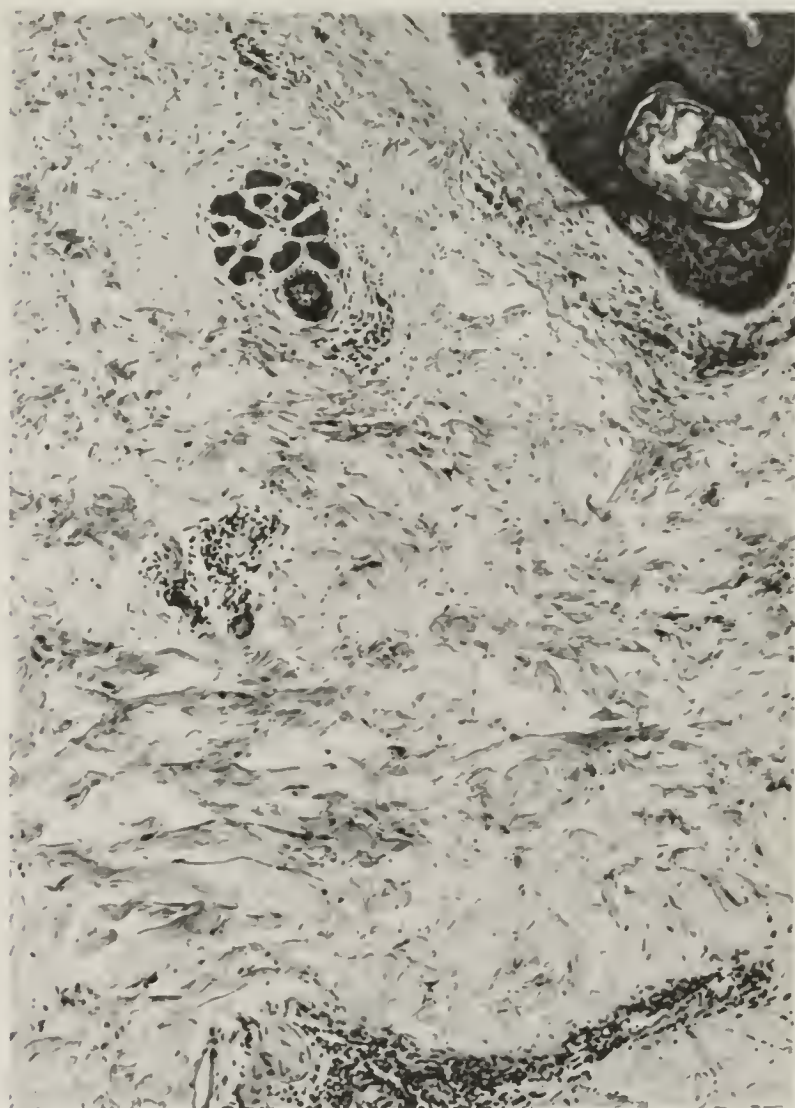


Figure 1  
Skin biopsy, showing epidermis with dilated hair follicle and perifollicular lymphohistiocytic infiltrate (Hematoxylin-eosin, original magnification x100).

Table 1  
Acne-Like Eruptions

|                              |
|------------------------------|
| Acne Vulgaris & Variants     |
| Pityrosporum Folliculitis    |
| Rosacea                      |
| Coccidioidomycosis           |
| Other Deep Fungal Infections |
| Perioral Dermatitis          |

Lesions are distributed primarily over the trunk but may also occur on the upper extremities and face. The lesions are usually pruritic but may be asymptomatic. Lesions are generally monomorphic follicular papules or pustules. Contributing factors are administration of antibiotics or corticosteroids, and diabetes mellitus.<sup>1</sup> Heid<sup>2</sup> has noted that sunlight and mechanical factors may also exacerbate the disease.

The question of whether the pityrosporum organism is indeed responsible for the folliculitis has been raised.<sup>1-4</sup> Arguments in support of its pathogenic role are as follows: The organism is seen on direct microscopic examination, usually in the absence of other



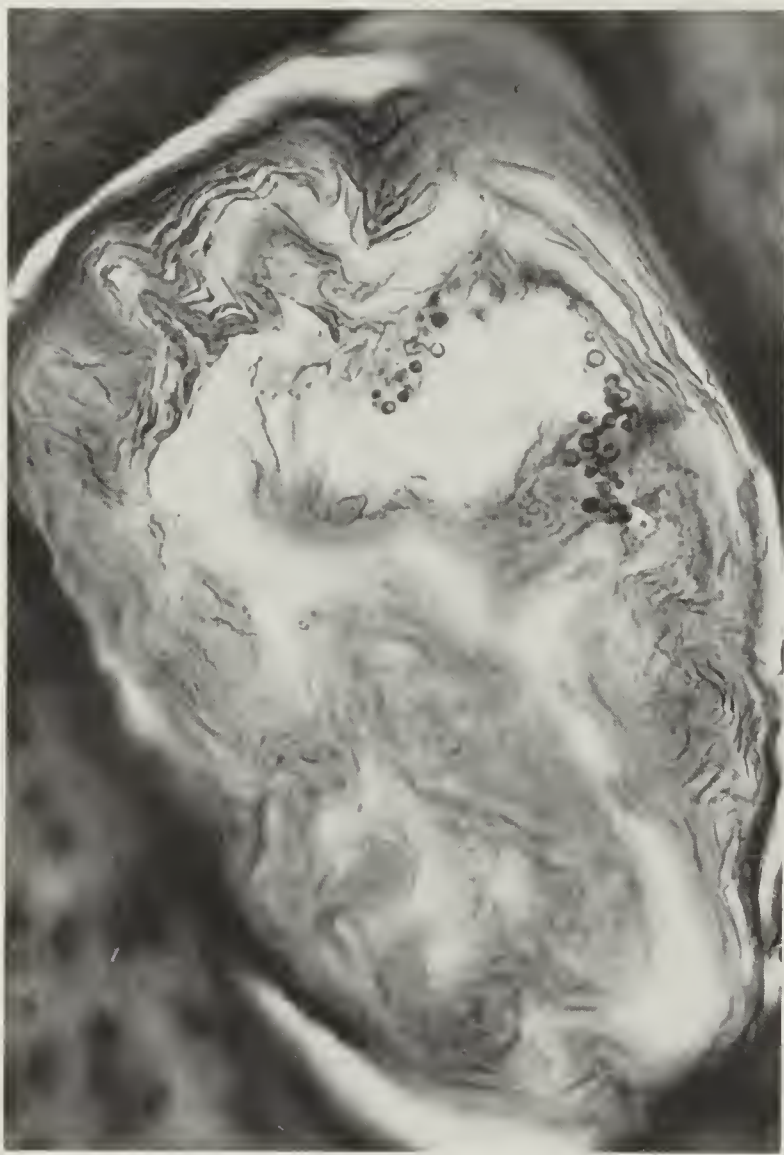


Figure 2

Higher power, showing dilated hair with multiple spores which also stained employing Periodic-Acid-Schiff staining (Hematoxylin-eosin, original magnification x400).

Table 2  
Drug Induced  
Acne-Like Eruptions

|                             |
|-----------------------------|
| Steroids                    |
| Actinomycin D               |
| Lithium                     |
| Bromides                    |
| Iodides                     |
| Isonicotinic Acid Hydrazide |
| Vitamin B12                 |
| Dilantin                    |
| Trimethadione               |
| Phenobarbitol               |
| Tetracycline                |

microorganisms. Biopsy specimens reveal the organism in the follicle or perifollicular infiltrate. The lesions respond well to antimycotic agents while they are exacerbated or unresponsive to antibiotics. Experimental reproduction of a dermatitis with follicular pathology has been carried out in animals

innoculated with pityrosporum organisms.<sup>5</sup> The strongest argument against a pathogenic role for pityrosporum is that the organism appears to be a member of normal cutaneous flora. Roberts<sup>6</sup> studied the clinically normal skin of 100 patients with unrelated minor dermatological complaints and found *P. orbiculare* on the trunk in more than 90% of the subjects.

#### Historical Background and Literature Review

Speculation concerning the role of the pityrosporum organism in dermatological disease has received much attention, primarily due to its implication in tinea versicolor. Gordon<sup>7</sup> first named *Pityrosporum orbiculare* in 1951 when he isolated it from 13 of 18 cases of tinea versicolor. He characterized the yeast as a "thick-walled, spherical, budding organism, 2.1-4.8 microns in diameter, very closely resembling the spherical elements of *Malassezia furfur* that appear in lesions." The organism was lipophilic. All specimens stained PAS positive. Gordon's attempts to establish an identity between the organism and *M. furfur* by culture and by inoculation in humans, however, failed. Subsequently several workers attempted to establish a pathogenic role for *P. orbiculare* in tinea versicolor and an identity between *P. orbiculare* and *M. furfur*. Burke<sup>8</sup> successfully produced scaly lesions in human subjects by inoculation with *P. orbiculare* and hypothesized that *P. orbiculare* represents the yeast phase of *M. furfur*. Sternberg and Keddie<sup>9</sup> carried out immunofluorescent studies and found a common antigen to *P. orbiculare* and *M. furfur*, suggesting that the two organisms are closely related, if not identical. Keddie's later use of electron microscopy to establish similarity in the ultrastructure of the organisms substantiated this view. Several investigators<sup>8,11,12</sup> have suggested a change from commensal to parasite with a *P. orbiculare* to *M. furfur* transition. This transition may be due to host factors such as Cushing's syndrome or malnutrition, with avitaminosis as suggested by Burke<sup>8</sup> or to increased virulence of certain *P. orbiculare* strains as suggested by Roberts.<sup>12</sup> McGinley<sup>13</sup> studied 31 patients with tinea versicolor and found that the yeast: mycelial ratio differed significantly between lesions and clinically normal skin. Filaments were twice as numerous as yeasts in lesions, whereas yeast forms were five times as numerous as filamentous forms on normal skin. This study added further support to the concept of *P. orbiculare* becoming pathogenic and undergoing mycelial transformation in tinea versicolor.

More recently, a second possible pathological role for *Pityrosporum orbiculare* has been proposed, that of pityrosporum folliculitis. Graham<sup>14</sup> first described this entity in 1968 in his discussion of Weary's<sup>15</sup> presentation of *Pityrosporum ovale*. He described a number of patients with follicular papular and pustular lesions which showed organisms similar to *P. ovale* on histologic section. Weary<sup>16</sup> later reported a case of acneiform follicular eruption in a patient on five separate occasions following the administration of broad-spectrum



antibiotics. The lesions consisted of erythematous follicular papules and pustules distributed over the chest, back, abdomen, neck and face. Discontinuance of the antibiotics resulted in complete resolution on each occasion. Bean<sup>17</sup> reported a similar case of follicular eruption in a patient on three separate occasions following oral tetracycline administration. Potter<sup>18</sup> reviewed seven cases of pityrosporum folliculitis and suggested that this is a quite common clinical entity. He further proposed that this may be due to an increased pathogenicity of certain strains of the pityrosporum organism, or due to host factors, as suggested before for this organism's pathological role in tinea versicolor. Heid<sup>2</sup> presented eight cases of pityrosporum folliculitis and discussed diagnostic criteria for this disease, particularly in the differential diagnosis of acne vulgaris. The authors describe adult patients with monomorphic lesions primarily on the trunk. Contributing factors were felt to be antibiotic or corticosteroid administration, and the lesions responded well to antimycotics. Berretty<sup>19</sup> discussed pityrosporum folliculitis as a separate clinical entity in the differential diagnosis of acne vulgaris. He later<sup>3</sup> reported a case of a 1-year-old woman with a three-year history of acneiform eruption on the chest which had been unresponsive to Vitamin A cream and oral tetracycline. The lesions consisted of follicular papules and pustules; no comedones or cysts were observed. The histological picture was one of chronic folliculitis with the pityrosporum organism observed in the exudate from the follicular ostium. The lesions resolved with selenium sulfide applied topically each night for five days.

### Concluding Remarks

Several workers have proposed mechanisms whereby the pityrosporum organism can induce a folliculitis.<sup>1,2,15,16,18,20,21</sup> Overgrowth of yeast, as in the administration of broad-spectrum antibiotics, can result in scale formation similar to that which occurs in tinea versicolor. Pityrosporum is capable of hydrolyzing triglycerides to free fatty acids, which would result in inflammation in the occluded follicle, so the mere presence of the organism in the follicle could result in a folliculitis.

Treatment for pityrosporum folliculitis has been discussed by several workers. Weary has proposed the topical application of sodium thiosulfate solution.<sup>21</sup> Potter<sup>18</sup> showed good results with the use of hydrophilic ointment with 2% salicylic acid, 5% benzoic acid, and 20% or 30% isopropyl alcohol. As noted previously, Berretty<sup>3</sup> was successful in using selenium sulfide. The usual acne medication regimen, including antibiotics and peeling agents is ineffective and may exacerbate the condition.<sup>1,3,18</sup>

We feel that pityrosporum folliculitis is a common clinical entity deserving consideration in the differential diagnosis of acneiform eruptions, especially in patients with a history of antibiotic or steroid administration, diabetes mellitus or immune compromise.

### References

1. Berretty PJM, Neumann HAM, Hulsebosch HJ: Pityrosporum folliculitis: is it a real entity? *Br J Dermatol* 103:565, 1980.
2. Heid E, Grosshans E, Provencher D, Basset M. Folliculites pityrosporiques. *Ann Dermatol Venerol (Paris)* 105:133-138, 1978.
3. Berretty P, Neumann M, Hausman R, Dingemans K: Follikulitis, verursacht durch pityrosporum. *Hautarzt* 31:613-615, 1980.
4. Yaffee HS: Pityrosporum folliculitis. *Arch Dermatol* 108:277, 1973.
5. Drouhet E, Domp Martin D, Papachristou-Moraiti A: Obtention d'une dermatite experimentale a pityrosporum ovale et (ou) pityrosporum orbiculare. *Bull Soc Fr Mycol Med* 61:167-171, 1977.
6. Roberts SOB: Pityrosporum orbiculare: incidence and distribution on clinically normal skin. *Br J Dermatol* 81:264-269, 1969.
7. Gordon MA: Lipophilic yeastlike organisms associated with tinea versicolor. *J Invest Derm* 17:267-272, 1951.
8. Burke RC: Tinea versicolor: susceptibility factors and experimental infection in human beings. *J Invest Derm* 36:389-402, 1961.
9. Sternberg TH, Keddle FM: Immunofluorescence studies in tinea versicolor. *Arch Dermatol* 84:999-1003, 1961.
10. Keddle FM: Electron microscopy of malassezia furfur in tinea versicolor. *Sabouraudia* 5:134-137, 1966.
11. Marples MJ: *The Ecology of Human Skin* Springfield: Thomas. pp. 407-422, 1965.
12. Roberts SOB: Pityriasis versicolor: a clinical and mycological investigation. *Br J Dermatol* 81:315-326, 1969.
13. McGinley KJ, Lantis LR, Marples RR: Microbiology of tinea versicolor. *Arch Dermatol* 102:168-171, 1970.
14. Graham JH: Pityrosporum ovale. *Arch Dermatol* 98:421, 1968.
15. Weary PE: Pityrosporum ovale. *Arch Dermatol* 98:408-422, 1968.
16. Weary PE, Russell CM, Butler HK, Hsu YT: Acneiform eruption resulting from antibiotic administration. *Arch Dermatol* 100:179-183, 1969.
17. Bean SF: Acneiform eruption from tetracycline. *Br J Dermatol* 85:585-586, 1971.
18. Potter BS, Burgoon CF, Johnson WC: Pityrosporum folliculitis. *Arch Dermatol* 107:388-391, 1973.
19. Berretty PJM, Neumann HAM, Hulsebosch HJ: Folliculitis door pityrosporum-organismen geïnduceerd. *Ned T Geneesk* 124:1818-1821, 1980.
20. Marples RR, Downing DT, Kilgman AM: Influence of pityrosporum species in the generation of free fatty acids in human surface lipids. *J Invest Derm* 58:155-159, 1972.
21. Frank SB: Uncommon aspects of common acne. *Cutis* 14:817-822, 1974.



## **Cystadenomas: Microcystic Adenomas of the Pancreas**

Hugo V. Villar, M.D., F.A.C.S.  
Brenda Dawson, M.D.

Editors:  
George Burdick, M.D.  
Stephen Glouberman, M.D.  
Steven R. Kanner, M.D.

### **Abstract**

Microcystic adenomas of the pancreas, a type of benign cystadenoma, are uncommon cystic neoplasms arising from the exocrine portion of the gland. They are characterized by a large, slowly growing tumor, occurring mostly in middle aged women. Symptoms are minimal and related to external gastrointestinal compression secondary to the large mass. Physical examination reveals a large intraabdominal mass. Ultrasound and CT scan are the keys to the diagnosis and show a solid and cystic lesion with stippled calcifications. Histologically, they are composed of tiny cysts lined by flattened or cuboidal cells whose cytoplasm contains glycogen and little or no mucin. Surgical resection is usually feasible and is accompanied by an excellent prognosis.

**Key Words:** pancreas, cystadenoma, microcystic adenoma.

From: The University of Arizona Health Sciences Center, Departments of Surgery and Pathology, Tucson, Arizona 85724. Reprint requests to Dr. Villar, Department of Surgery, University of Arizona Health Sciences Center, Tucson, Arizona 85724.

Pancreatic cancer causes the death of more than 20,000 patients per year and its incidence seems to be increasing. The number of patients surviving five years after the diagnosis is made is less than two percent. The patient who has a biliary bypass for pancreatic carcinoma will die within six months on the average.<sup>1,2</sup> On the other hand, cystic lesions of the pancreas are quite uncommon and are much more amenable to surgical treatment. The most common cystic lesion is the inflammatory pseudocyst, whose walls lack a true epithelial lining. The walls of a pseudocyst are formed by the surrounding organs and pancreatic and inflammatory tissue.

True neoplastic cysts of the pancreas are believed to arise from the epithelium of the larger pancreatic ducts. These are usually large, well-circumscribed masses common in women above 60 years of age. They are in general susceptible to surgical removal. These true pancreatic cysts lined by epithelium have been divided by Robson and Moynihan<sup>3</sup> into retention, congenital and proliferative cysts. Among proliferative cysts, the most common ones include cystadenomas and cystadenocarcinomas. Cystadenomas represent approximately 10% of nonmalignant cystic lesions of the pancreas and cystadenocarcinomas account for about one percent of all primary pancreatic malignancies. Therefore, it is difficult for the practicing physician to become familiar with these lesions and their management.

We report the clinical course of two patients who were seen in our hospital within the last year with a variant of pancreatic cystadenoma, the so-called microcystic adenoma.

### **Report of Cases**

**Case 1 -** A 68-year-old-woman was referred to the Arizona Health Sciences Center with a two year history of a large left upper quadrant mass. Except for some mild epigastric discomfort, she had been completely asymptomatic. One month prior to admission the abdominal pain became more severe, radiating to the back. Pain was relieved by bending. There was no weight loss. Physical examination revealed a middle aged woman in no acute distress with a large left upper quadrant mass which measured 20 cm in diameter. This mass seemed to be fixed. Upper gastrointestinal series showed a large hiatal hernia and medial displacement of the stomach. There were calcifications within the mass. A liver spleen scan was normal. The IVP showed displacement of the left kidney downward. Ultrasound revealed a large solid mass with a thick posterior wall (Figure 1). A CT scan showed a large mass, anterior to the spleen, compressing the stomach against the abdominal wall. Calcifications were present inside the mass. The mass was solid with some cystic components. The pancreas could not be well identified separate from this tumor (Figure 2). The upper part of the mass was anterior to a large hiatal hernia and immediately below the diaphragm. There seemed to be a plane of cleavage





For the pain of osteoarthritis  
the proven power of

**Motrin<sup>®</sup>**  
ibuprofen, Upjohn  
**600 mg Tablets**  
One tablet t.i.d.

Please see the following page for a brief summary of prescribing information.

**Upjohn**

## Motrin® Tablets (ibuprofen, Upjohn)

**Contraindications:** Individuals hypersensitive to it, or with the syndrome of nasal polyps, angioedema, and bronchospastic reactivity to aspirin, iodides, or other non-steroidal anti-inflammatory agents. Anaphylactoid reactions have occurred in such patients.

**Warnings:** Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Ulceration, perforation, and bleeding may end fatally. An association has not been established. *Motrin* should be given under close supervision to patients with a history of upper gastrointestinal tract disease, only after consulting ADVERSE REACTIONS.

In patients with active peptic ulcer and active rheumatoid arthritis, nonulcerogenic drugs, such as gold, should be tried. If *Motrin* must be given, the patient should be under close supervision for signs of ulcer perforation or gastrointestinal bleeding.

Chronic studies in rats and monkeys have shown mild renal toxicity characterized by papillary edema and necrosis. Renal papillary necrosis has rarely been shown in humans treated with *Motrin*.

**Precautions:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue *Motrin* and the patient should have an ophthalmologic examination, including central visual fields and color vision testing. **Fluid retention and edema** have been associated with *Motrin*; use with caution in patients with a history of cardiac decompensation or hypertension. *Motrin* is excreted mainly by the kidneys. In patients with renal impairment, reduced dosage may be necessary. Prospective studies of *Motrin* safety in patients with chronic renal failure have not been done. *Motrin* can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and those on anticoagulant therapy. Patients should report signs or symptoms of **gastrointestinal ulceration** or bleeding, blurred vision or other eye symptoms, skin rash, weight gain, or edema. To avoid exacerbation of disease or adrenal insufficiency, patients on prolonged **corticosteroid therapy** should have therapy tapered slowly when *Motrin* is added. The antipyretic, anti-inflammatory activity of *Motrin* may mask inflammation and fever.

**Drug interactions.** *Aspirin*: used concomitantly may decrease *Motrin* blood levels.

*Coumarin*: bleeding has been reported in patients taking *Motrin* and coumarin.

**Pregnancy and nursing mothers:** *Motrin* should not be taken during pregnancy nor by nursing mothers.

### Adverse Reactions

The most frequent type of adverse reaction occurring with *Motrin* is gastrointestinal, of which one or more occurred in 4% to 16% of the patients.

#### **Incidence Greater Than 1% (but less than 3%)—Probable Causal Relationship**

**Gastrointestinal:** Nausea,\* epigastric pain,\* heartburn,\* diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of GI tract (bloating and flatulence); **Central Nervous System:** Dizziness,\* headache, nervousness; **Dermatologic:** Rash\* (including maculopapular type), pruritus; **Special Senses:** Tinnitus; **Metabolic/Endocrine:** Decreased appetite; **Cardiovascular:** Edema, fluid retention (generally responds promptly to drug discontinuation; see PRECAUTIONS).

#### **Incidence Less Than 1%—Probable Causal Relationship\*\***

**Gastrointestinal:** Gastric or duodenal ulcer with bleeding and/or perforation, gastrointestinal hemorrhage, melena, gastritis, hepatitis, jaundice, abnormal liver function tests; **Central Nervous System:** Depression, insomnia, confusion, emotional lability, somnolence, aseptic meningitis with fever and coma; **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme, Stevens-Johnson syndrome, alopecia; **Special Senses:** Hearing loss, amblyopia (blurred and/or diminished vision, scotomata, and/or changes in color vision) (see PRECAUTIONS); **Hematologic:** Neutropenia, agranulocytosis, aplastic anemia, hemolytic anemia (sometimes Coombs' positive), thrombocytopenia with or without purpura, eosinophilia, decreases in hemoglobin and hematocrit; **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure, palpitations; **Allergic:** Syndrome of abdominal pain, fever, chills, nausea and vomiting, anaphylaxis, bronchospasm (see CONTRAINDICATIONS); **Renal:** Acute renal failure in patients with preexisting, significantly impaired renal function, decreased creatinine clearance, polyuria, azotemia, cystitis, hematuria; **Miscellaneous:** Dry eyes and mouth, gingival ulcer, rhinitis.

#### **Incidence Less Than 1%—Causal Relationship Unknown\*\***

**Gastrointestinal:** Pancreatitis; **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities, pseudotumor cerebri; **Dermatologic:** Toxic epidermal necrolysis, photoallergic skin reactions; **Special Senses:** Conjunctivitis, diplopia, optic neuritis; **Hematologic:** Bleeding episodes (e.g., epistaxis, menorrhagia); **Metabolic/Endocrine:** Gynecomastia, hypoglycemic reaction; **Cardiovascular:** Arrhythmia (sinus tachycardia, sinus bradycardia); **Allergic:** Serum sickness, lupus erythematosus syndrome, Henoch-Schönlein vasculitis; **Renal:** Renal papillary necrosis.

\*Reactions occurring in 3% to 9% of patients treated with *Motrin*. (Those reactions occurring in less than 3% of the patients are unmarked.)

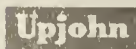
\*\*Reactions are classified under "Probable Causal Relationship" (PCR) if there has been one positive rechallenge or if three or more cases occur which might be causally related. Reactions are classified under "Causal Relationship Unknown" if seven or more events have been reported but the criteria for PCR have not been met.

**Overdosage:** In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine, so alkaline diuresis may be beneficial.

**Dosage and Administration:** Do not exceed 2400 mg per day. If gastrointestinal complaints occur, administer with meals or milk.

Rheumatoid arthritis and osteoarthritis, including flares of chronic disease: Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d. Mild to moderate pain: 400 mg every 4 to 6 hours as necessary for relief of pain.

**Caution:** Federal law prohibits dispensing without prescription.



THE UPJOHN COMPANY  
Kalamazoo, Michigan 49001 USA

MED B-5-S



A Public Service of This Magazine  
& The Advertising Council



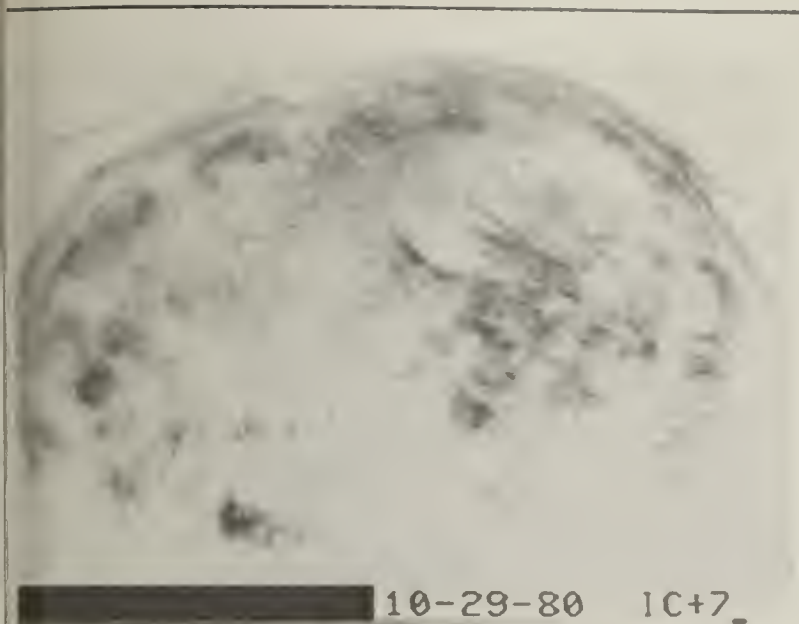


Figure 1

Ultrasound, sagittal view. A large solid mass with strong echos is seen in the left upper quadrant. Notice the thickening in the posterior wall.



Figure 3

CT scan shows a large hiatal hernia and the tumor immediately below the diaphragm.



Figure 2

CT scan shows a large solid mass anterior to the spleen. Notice the stippled calcifications. The pancreas cannot be separated from the mass.

between the spleen, kidney and the stomach on the CT scan (Figure 3). Surgical exploration revealed a 15 x 12 cm mass arising from the tail and body of the pancreas. It was firm and well-vascularized. It was drained by a large single vein into the splenic vein. The mass was removed completely without sacrificing the spleen. A cholecystectomy was also performed because of the presence of gallstones. Recovery was uneventful and the patient was dismissed on the seventh postoperative day. She is well eight months later.

Case 2 - A 92-year-old-woman was admitted to the Arizona Health Sciences Center in September 1980 with a one week history of nausea and vomiting. She had previously been asymptomatic. Physical examination was normal except for a large upper abdominal mass.



Figure 4

Upper gastrointestinal series showing a large intraabdominal mass displacing the ligament of Trietz downward and medially. There was no delay of gastric emptying.

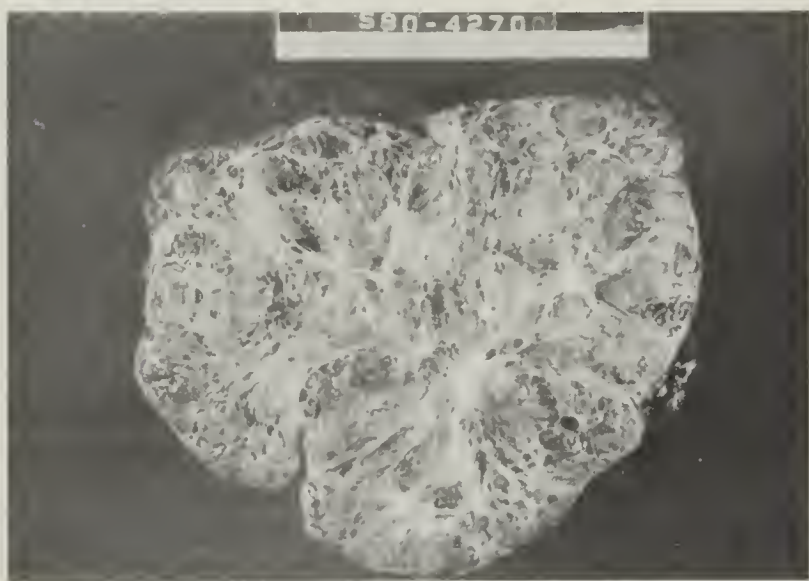


Figure 5

Gross picture of the resected pancreatic microcystic adenoma. The tumor is composed of nodules and cysts of various sizes. The transverse diameter is 15 cm.

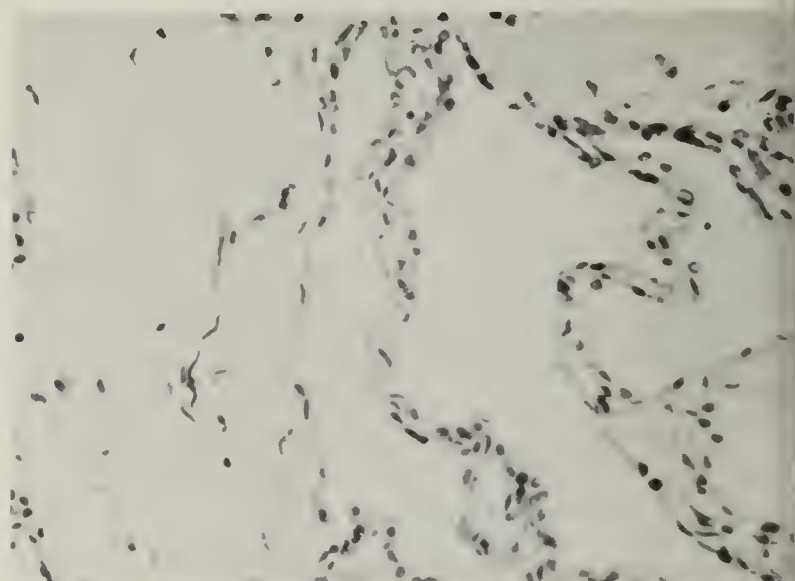


Figure 7

Photomicrographs of the microcystic adenoma at high power. Notice the regular, low cuboidal cells (Hematoxylin and eosin x 160).

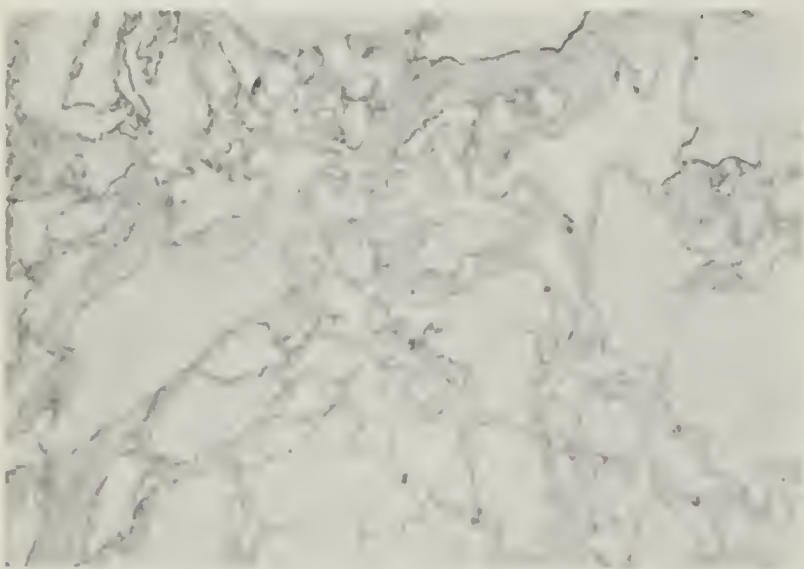


Figure 6

Photomicrographs of the microcystic adenoma at lower power showing numerous small cysts separated by thin strands of connective tissue (Hematoxylin and eosin x 16).

Upper gastrointestinal series revealed medial displacement of the stomach and downward displacement of the ligament of Treitz (Figure 4). There was no delay in gastric emptying. Small bowel transit time was normal. CT scan revealed a solid pancreatic mass. Exploration revealed a large pancreatic tumor arising from the head and body of the pancreas. A transduodenal intraoperative pancreatic biopsy revealed microcystic adenoma. Because of the mass's localization and the patient's age, no further surgical procedures were performed. The patient had an uncomplicated recovery and she was dismissed on the eleventh postoperative day. She has remained asymptomatic.

#### Pathology

Grossly, the resected tumor in Case 1 consisted of a

discrete, tan, spherical, nodular mass weighing 1200 grams. The maximum diameter was 15 cm. The external surface was composed of nodules and cystic structures of varying sizes, the smaller of which ranged from 0.3 cm to 1.5 cm in diameter and the larger ranging from 2 cm to 5 cm with one cyst of 8 cm. The smaller cysts were fluctuant beneath a thin glistening membrane and the larger ones were more resilient.

The mass was bisected to display a moist, pink and glistening cystic surface traversed by centrally located, stellate, branching strands of connective tissue. These strands radiated between multilobulated cystic structures, many of which were filled with watery, yellowish-green fluid. The cysts ranged in size from 0.3 cm to 1 cm in diameter, with the smaller ones occupying the central region of the tumor (Figure 5). There were small foci of hemorrhage and a region of calcification associated with one of the larger cystic structures. There were no papillary formations. The second specimen was a needle biopsy.

Multiple sections of both the needle biopsy and the resected tumor were similar microscopically. They showed a lacy network of small cystic structures separated by fine and coarse fibrous trabeculae. These connective tissue strands were scantily cellular with evidence of mild edema (Figure 6). The cysts contained either an amorphous glycogen-rich material or red blood cells. These cysts were lined by regular, low cuboidal, epithelial cells arranged in one or more layers. The nuclei were round or ovoid and were surrounded by a moderate amount of pale cytoplasm (Figure 7). There was no mucin in the cystic epithelial cells of either tumor. PAS (Periodic acid Schiff) staining showed stainable material intracellularly and within the cysts which was removed by diastase and was therefore glycogen. No papillary structures were seen and the tall



mucin-producing cells of mucinous cystic neoplasms were absent. There was no nuclear pleomorphism or mitotic activity. There was no loss of polarity, crowding or increased nuclear-to-cytoplasmic ratio.

The resected specimen was surrounded by a thin band of fibrous tissue. There was also a focal area of calcification and a region of unremarkable pancreatic elements including ducts, islets of Langerhans and large blood vessels. Three abdominal lymph nodes were submitted with the large tumor and were negative for neoplasm. Cholecystitis and cholelithiasis were present in Case 1.

## Discussion

Cystic neoplasms of the pancreas are uncommon. The Mayo Clinic was able to collect 45 cases of cystadenoma of the pancreas from 1939 to 1975,<sup>4</sup> proof of the scarcity of this lesion. Cystadenomas usually occur in the late middle-aged woman. The mean age at the time of diagnosis was 55 years in the Mayo Clinic series. These tumors have been noticed occasionally in children. Brunschwig<sup>5</sup> has described two infants and Gunderson and Janis<sup>6</sup> reported a multi-loculated cystadenoma in a 16 month old child. However, this occurrence must be extremely rare. As our cases demonstrate, these tumors are slow growing and minimal or no symptoms may be present for many years before surgical exploration. Several reports have included patients with lesions present for more than ten years. Pain is the most frequent symptom encountered. The pain is usually epigastric or is related to the left upper quadrant. Most symptoms are related to extrinsic mechanical compression of the gastrointestinal tract. Location of the tumor and the magnitude of the compression determines the patient's symptoms. Gastric outlet obstruction and jaundice are common when the lesions are located in the head of the pancreas. Lesions located in the body and tail are most likely to be symptomatic. Occasionally, they may produce portal hypertension and esophageal varices, the portal hypertension being secondary to occlusion of the splenic vein. This complication has been reported by Sheers et al.<sup>7</sup> with complete resolution of the symptoms after distal pancreatectomy. In the Mayo Clinic series only one of the 45 patients had portal hypertension with gastroesophageal varices. Physical examination usually is normal with a well nourished patient. The large, round, firm intraabdominal mass can usually be palpated. Displacement of the spleen downward may cause the tumor to be confused with an enlarged spleen. Because of the posterior nature of the mass, differentiating this tumor from an enlarged kidney can also be difficult. The presence of a large intraabdominal mass in a well-nourished patient is suggestive of a benign rather than malignant tumor.

An upper gastrointestinal series usually demonstrates displacement of the stomach or the upper jejunum and transverse colon. About 15% of cases show evidence of calcification in a stippled, irregular pattern. If the mass is

located in the head of the pancreas, the duodenal loop may be displaced or widened. Diagnosis is further facilitated by the use of either ultrasound or CT scan.

Ultrasound plays an important role in the differential diagnosis with pseudocyst of the pancreas. Cystadenomas are sonolucent with good through-transmission and slightly irregular but well-defined margins. Identification of septa and an irregular echo pattern at high gain settings is characteristic.<sup>8,9</sup> The pseudocysts, on the other hand, are usually unilocular cystic masses with good through-transmission and a strong posterior wall.

Computerized tomography (CT scan) will usually show an encapsulated well-delineated, lobulated solid pancreatic mass.<sup>10</sup> The polycystic and solid components are usually obvious. The "sunburst" calcifications are usually better detected by this technique rather than by conventional radiographs. Differential diagnosis with a pancreatic cystadenocarcinoma or intrapancreatic cystic metastases can be difficult. The angiographic findings in cystadenoma are not distinctive. The tumor tends to be hypervascular with enlargement of feeding arteries, neovascularity and a "tumor stain." A few hypovascular cystadenomas have been described.<sup>9</sup>

The histology of these tumors has been well described.<sup>11-13</sup> The salient light microscopic features of microcystic adenomas were present in both of these cases,<sup>12</sup> viz. numerous microcystic structures lined by regular, uniform epithelial cells containing intracytoplasmic glycogen. There was no evidence of the atypical cellular features of the malignant or potentially malignant counterpart of these cystic adenomas, the cystadenocarcinoma or the mucinous cystadenoma, respectively.<sup>11</sup> Microcystic adenomas can be distinguished from lymphangiomas, which they resemble, on the basis of uniformity and small size of the cysts, absence of lymphocytes within the cyst and the presence of glycogen in the cyst lining cells.<sup>12</sup>

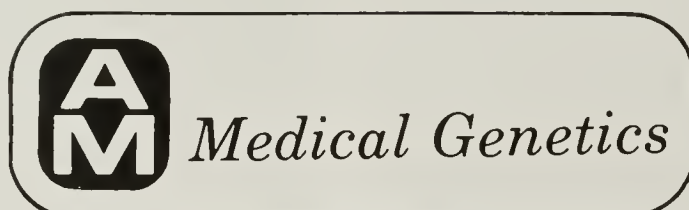
The relevance of a clear histological diagnosis at the time of surgical exploration cannot be over emphasized. Since microcystic adenomas are benign, slow-growing tumors, resection should not be attempted if technical difficulties make the procedure extremely risky, as shown by our second case in which a pancreaticoduodenectomy would have imposed extreme hazards on the patient. The feasibility of detaching the tumor from the superior mesenteric vessels should be assessed carefully before resection is attempted. However, this type of cystadenoma of the pancreas is, by and large, quite amenable to surgical resection and is associated with an excellent prognosis.

## References

1. Axtell LM, Cutler SJ, Myers MS: *End Results in Cancer* Report No. 4, DHEW Publication No. 73-272, pp. 81-84, 1972.
2. Silverberg E: Cancer statistics, 1978 *Cancer* 28:17-32, 1978
3. Robson AWM, Moynihan BGA: *Diseases of the Pancreas and their Surgical Treatment*. Philadelphia, W. B. Saunders Co., 1903.

*Continued on Next Page*

4. Hodgkinson DJ, ReMine WH, Weiland LH: Pancreatic cystadenoma. *Arch Surg* 113:512-519, 1978.
5. Brunschwig A: *The Surgery of Pancreatic Tumors*. St. Louis, CV Mosby Co, 1942, p. 164.
6. Gunderson AE, Janis JF: Pancreatic cystadenoma in childhood: report of a case. *J Pediatr Surg* 4:478-481, 1969.
7. Sheers R: A pancreatic cystadenoma complicated by varices: case report. *Br J Surg* 67:144-145, 1980.
8. Carroll B, Sample WF: Pancreatic cystadenocarcinoma: CT body scan and gray scale ultrasound appearance. *Am J Roentgenol* 131:339-341., 1978.
9. Freeny PC, Weinstein CJ, Taft DA, Allen FH: Cystic neoplasms of the pancreas: New angiographic and ultrasonographic findings. *Am J Roentgenol* 131:795-802, 1978.
10. Parienty RA, Ducellier R, Lubrano JM, Picard JD, Pradel J, Smolarski N: Cystadenomas of the pancreas: Diagnosis by computed tomography. *J Comput Asst Tomogr* 4:364-367, 1980.
11. Compagno J, Oertel JE: Microcystic adenomas of the pancreas (glycogen-rich cystadenomas). A clinicopathologic study of 34 cases. *Am J Clin Path* 69:289-298, 1978.
12. Compagno J, Oertel JE: Mucinous cystic neoplasms of the pancreas with overt and latent malignancy (cystadenocarcinoma and cystadenoma). A Clinicopathologic study of 41 cases. *Am J Clin Path* 69:573-580, 1978.
13. Bogomoletz WV, Adnet JJ, Widgren S, Stavrou M, McLaughlin JE: Cystadenoma of the pancreas: A histological, histochemical and ultrastructural study of seven cases. *Histopathology* 4:309-320, 1980.



## Contemporary Management of Leukemia:

### Cytogenetic Diagnosis and Monitoring of Chronic Myelocytic Leukemia

Avery A. Sandberg, M.D.  
Frederick Hecht, M.D.  
Barbara K. McCaw, Ph.D.

Editor:  
Frederick Hecht, M.D.

In this section on Medical Genetics, one aim is to bring advances in care to the medical community in Arizona. The first author of the following article, Dr. Avery A. Sandberg, is a pioneering worker in cancer and chromosomes. He is Editor-In-Chief of the journal *Cancer Genetics and Cytogenetics*, is one of the ten most published medical authors in the world and is responsible for numerous advances in medicine. Dr. Sandberg is currently Visiting Physician-Scientist at The Genetics Center and Cancer Research Center in Tempe. **FH**

From: The Genetics Center and Cancer Research Center of the Southwest Biomedical Research Institute, 123 East University Drive, Tempe, Arizona 85281. Dr. Sandberg is a visiting physician-scientist from Roswell Memorial Institute, Buffalo, New York 14263. Supported in part by grants from the National Cancer Institute of the National Institutes of Health.

### Glossary of Cytogenetic Terms Used in this Paper

**Chromosome** - Discrete bodies containing a centromere and two arms and the hereditary material necessary for cell division, differentiation and function.

**Metaphase** - One of the cellular phases characterized by the disappearance of the nuclear membrane and arrangement of the chromosomes at the equatorial plate in preparation for cell division.

**Karyotype** - A systematic arrangement of the chromosomes into various groups, according to size, centromere location and, especially, the banding pattern. In the human, the karyotype contains 22 pairs of autosomes and 2 sex chromosomes (XX in females; XY in males) for a total of 46 chromosomes per cell.

**Cytogenetics** - The study of cell genetics. Often the terms *cytogenetic* analysis or changes are used interchangeably with *chromosomal* or *karyotypic* analysis or changes.

**Diploidy** - The number of chromosomes present in the normal cells of an individual. In the human, it is 46.

**Aneuploidy** - Deviation of the chromosome number from the diploidy; hypodiploidy is less than 46 and hyperdiploidy (or hyperploidy) is more than 46 chromosomes. Pseudodiploidy is associated with an abnormal karyotype, even though the number of chromosomes is 46.

**Isochromosome** - A symmetrical chromosome composed of a duplicated long or short arm of the original chromosome.

**Translocation** - Breakage followed by transfer or exchange of chromosome material between chromosomes.

**CML** - Chronic myelogenous (myelocytic, myeloid, granulocytic) leukemia.

For the definition of other terms, details of methodologies, description of chromosomal changes in



various leukemias and cancers and other aspects of cytogenetics as related to these conditions, the reader is referred to the volume entitled *The Chromosomes in Human Cancer and Leukemia* by A. A. Sandberg, published by Elsevier North-Holland, New York City, 1980.

### Abstract

Chromosome studies have brought revolutionary changes to the diagnosis and monitoring of chronic myelocytic leukemia (CML). CML is a unique disease. In most cases, CML is characterized by a characteristic chromosome abnormality, the Philadelphia (Ph<sup>1</sup>) chromosome. The blast crisis in CML can be anticipated by finding additional characteristic changes in chromosomes. Remission can also be anticipated by cytogenetic studies. Cytogenetic studies are essential to the diagnosis and care of patients with CML. A specific protocol is recommended and is detailed here for the cytogenetic diagnosis and monitoring of CML. The care of CML patients without appropriate cytogenetic studies leads to unnecessary morbidity and premature death.

### Definition of Chronic Myelogenous Leukemia

Chronic myelocytic leukemia (CML) is a disease characterized by the proliferation of marrow elements, particularly those of the granulocytic series. CML almost invariably results in a definite blood leukocytosis with circulating immature elements (myelocytes, promyelocytes and, to a lesser degree, myeloblasts), the presence of splenomegaly and/or lymph node enlargement and, in the preponderant number of cases, is accompanied by a specific chromosomal change.

After a chronic phase, usually lasting years, the disease undergoes a transformation to an acute leukemia-like picture. This blastic phase usually responds poorly to therapy and, hence, is associated with poor survival (on the average 3-4 months). Like the chronic phase, the blastic phase of CML is also characterized by non-random chromosome abnormalities.

CML is essentially a disease of adulthood, but forms seen in adults may occur in infants and children.

The cytogenetic findings in human leukemia have generally been published in relatively specialized journals. Advances in the application of these findings to cancer diagnosis and treatment are sufficiently well established to warrant dissemination of this knowledge in general medical journals and, thus, to the general medical public. This article will concern itself primarily with the application of chromosome data to the diagnosis and monitoring of patients with CML. (Tables 1 and 2).

### Chromosome Findings in CML

Of all human diseases, CML is unique in that it is characterized in most cases by the presence of a specific and characteristic chromosomal change in the leukemic cells. This is the Philadelphia (Ph<sup>1</sup>) chromosome. (Figure 1). First described two decades ago, the Ph<sup>1</sup> chromosome abnormality is present in the cells of about 85% of all patients with CML.

Table 1  
Cytogenetic Diagnosis in Leukemia

1. Bone marrow aspiration
2. Put initial 0.5-1.5 cc of aspirate in heparinized (green-top) tube.\*
3. Immediately mix aspirate with heparin in tube.
4. Do not freeze or refrigerate.
5. Send tube to laboratory as expeditiously as possible (*at the latest*, within 24 hours of aspiration) with relevant clinical and hematologic data and slide of marrow cells.

\*When only a small amount of marrow (less than 0.5 cc) is obtained, the addition of 1 ml. of the patient's blood has been advocated, in order to prevent clotting of the specimen in transit.

Table 2  
Chromosomal Monitoring in CML Patients

- A. **Peripheral Blood:**  
3 cc in heparinized (green-top) tube, optimally once a month or whenever patient is seen.
- B. **Bone Marrow:**  
0.5-1.5 cc of initial aspirate each time marrow is examined (as per Table 1).
- C. **Rationale:**  
To predict and treat impending blast crisis. Also to predict approaching remission.

A minority of patients — at most 15% — lack the Ph<sup>1</sup> chromosome. The exact nature of Ph<sup>1</sup>-negative CML is still the subject of controversy. Although in some cases it appears of the same character as Ph<sup>1</sup>-positive CML, Ph<sup>1</sup>-negative CML may constitute a rather heterogeneous group of leukemias.

### Differences in Prognosis

The prognosis, as reflected in survival, is infinitely worse in Ph<sup>1</sup>-negative CML as compared to the Ph<sup>1</sup>-positive disease, i.e., a medium survival of less than a year for the former group and nearly four years for the latter group, (Figure 2 and Table 3). The presence of a Ph<sup>1</sup> chromosome appears to endow the disease with a longer chronic phase than that observed in the Ph<sup>1</sup>-negative disease.

Thus, both the physician and patient are best served by establishing the presence or absence of a Ph<sup>1</sup> in the leukemic cells of the patient with CML as soon as the diagnosis is suspected. The presence or absence of the Ph<sup>1</sup> also dictates the type of therapeutic approaches to be taken.

### The Ph<sup>1</sup> Chromosome

The Ph<sup>1</sup> is an abbreviated chromosome No. 22. The loss of material from No. 22 results in a rather typical appearance of an unusually small chromosome which is readily recognized with routine staining.

The introduction of banding techniques, allows the rigorous identification of each chromosome by its banding pattern and has revealed that the deleted part of chromosome No. 22 is translocated in more than 90% of



Figure 1A  
Metaphase of a bone marrow cell showing a characteristic Philadelphia (Ph<sup>1</sup>)-chromosome (arrow). Note small size of the Ph<sup>1</sup> when compared with even the smallest normal chromosomes in the set.

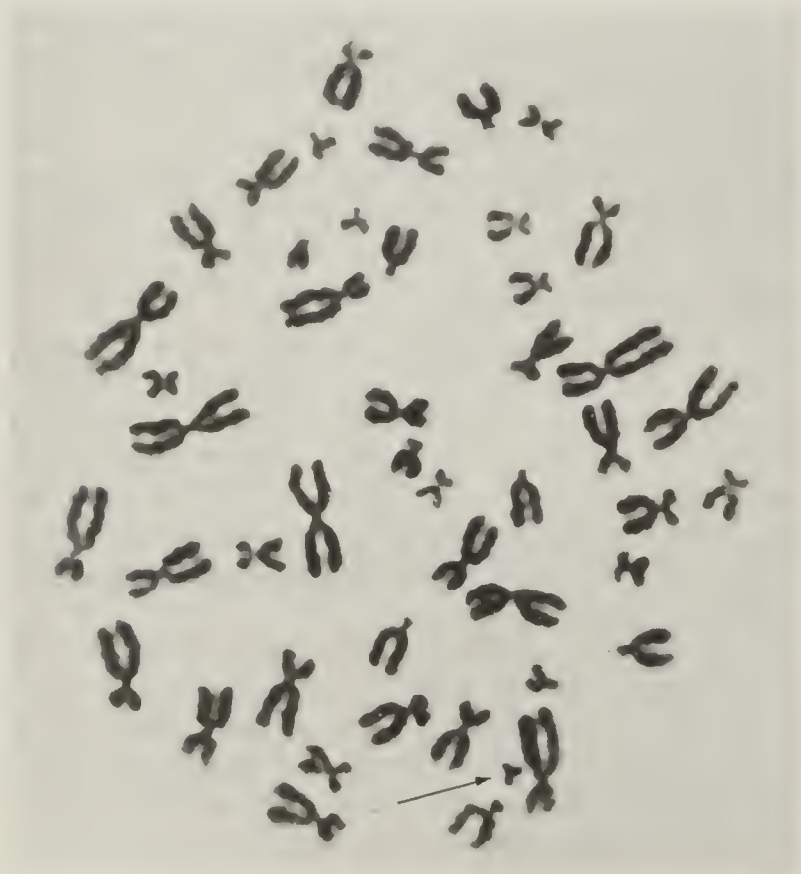


Figure 1B  
Metaphase of a bone marrow cell showing a characteristic Ph<sup>1</sup>-chromosome (arrow). Figures 1A and 1B are of unbanded preparations, but reveal the readily recognizable characteristic features of the abnormal (Ph<sup>1</sup>) chromosome.

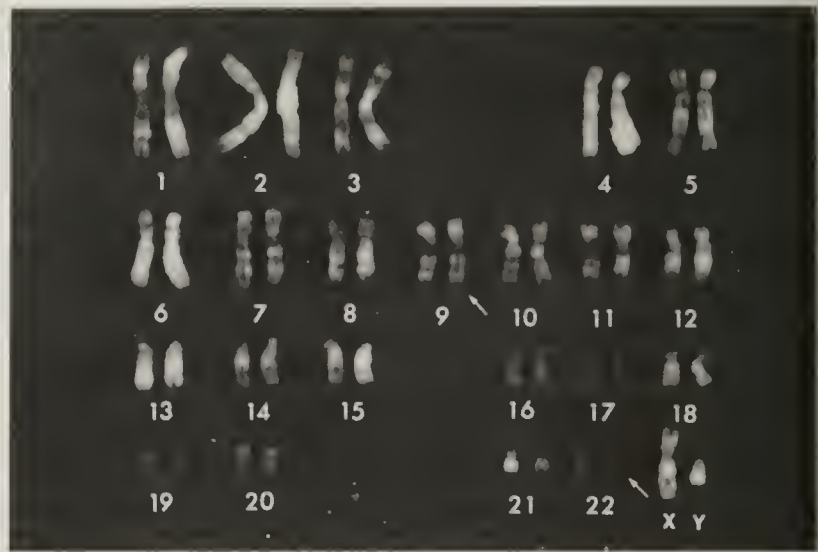


Figure 1C  
Q-banded karyotype of a marrow cell from a patient with Ph<sup>1</sup>-positive CML showing the characteristic Ph<sup>1</sup>-translocation between chromosome No. 22 and No. 9 (arrow); the deleted part of No. 22 is attached to the long arms of No. 9. The Ph<sup>1</sup> is always derived from an abbreviated (deleted) No. 22 chromosome. No other changes are evident in this karyotype.

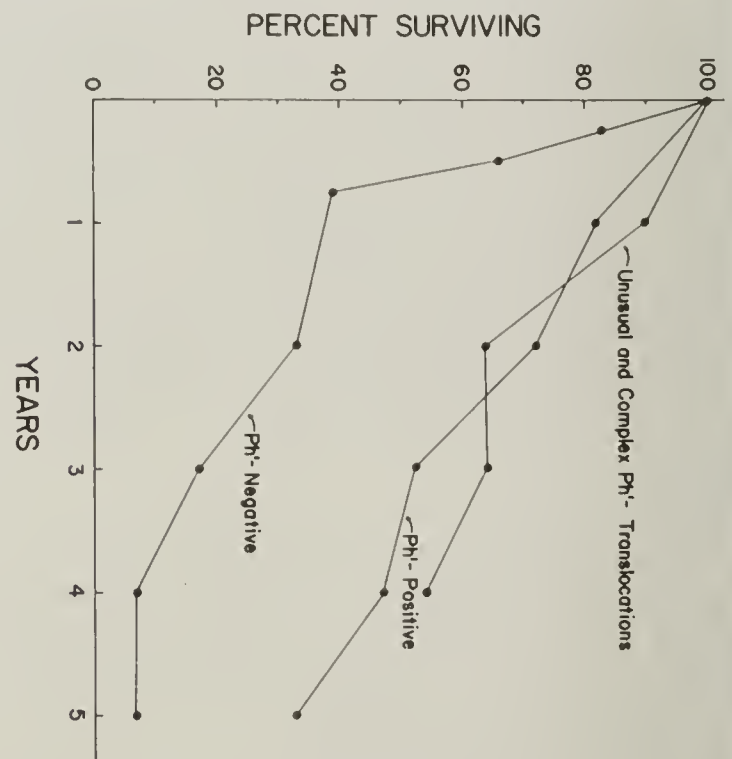


Figure 2  
Median survival of patients with CML with and without a Ph<sup>1</sup>. The median survival for Ph<sup>1</sup>-negative CML is less than a year, whereas that of the Ph<sup>1</sup>-positive group is nearly 4 years. Whether the Ph<sup>1</sup> is due to a standard translocation, i.e. t(9;22), or due to an unusual or complex Ph<sup>1</sup>-translocation, apparently does not affect the median survival of the patients.



Table 3  
Prognostic signs in CML by Chromosome Studies

|                                                   |                                                                                                                                                                                                 |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Favorable Signs (Better Survival):</b>      |                                                                                                                                                                                                 |
| 1.                                                | Presence of Ph <sup>1</sup> chromosome.                                                                                                                                                         |
| 2.                                                | Presence of some cells without Ph <sup>1</sup> .                                                                                                                                                |
| 3.                                                | Loss of Y chromosome in Ph <sup>1</sup> cells from males.                                                                                                                                       |
| <b>B. Unfavorable signs (Shortened Survival):</b> |                                                                                                                                                                                                 |
| 1.                                                | In initial bone marrow: Absence of Ph <sup>1</sup> chromosome.                                                                                                                                  |
| 2.                                                | In bone marrow or blood: Additional chromosome changes such as extra Ph <sup>1</sup> , an extra chromosome #8 and, particularly an isochromosome of the long arm of #17, indicate blast crisis. |

ases to chromosome No. 9. The clinical course and survival of those patients in whom the Ph<sup>1</sup> translocation involves a chromosome other than No. 9 appears not to differ significantly from that of the other Ph<sup>1</sup>-positive CML cases. The key question is simply: Does the patient have the Ph<sup>1</sup> chromosome?

It should be stressed that the Ph<sup>1</sup> chromosome is always an abbreviated No. 22. No other chromosome constitutes the Ph<sup>1</sup>. Evidence indicates that the Ph<sup>1</sup> is generated through a reciprocal translocation or exchange of material between chromosomes No. 22 and usually chromosome No. 9. The Ph<sup>1</sup> can be readily identified in almost all cases of Ph<sup>1</sup>-positive CML upon routine chromosome staining.

#### Practical Aspects of Chromosome Analysis in CML

The initial chromosome analysis of CML should be performed on bone marrow material, for it has been shown that the presence of cytogenetically normal cells may influence the course of the disease. Ascertaining the presence of cytogenetically normal cells in addition to the Ph<sup>1</sup> chromosome is of value to the clinician. Patients with the Ph<sup>1</sup> plus normal cells tend to do better than patients with the Ph<sup>1</sup> alone. Additional chromosomal changes besides the Ph<sup>1</sup> may be more readily established in the bone marrow at the time of diagnosis than in any other cells in CML.

Monitoring the patient is another matter. Once the bone marrow has been examined, the course of the patient, from a cytogenetic viewpoint can be readily monitored by examining the chromosomes of the circulating blood cells. It is now well recognized that the blastic phase (acute phase) of CML is accompanied in more than 75% of cases by additional chromosomal changes, i.e., an extra Ph<sup>1</sup>, an extra No. 8 and, characteristically, an isochromosome of the long arm of chromosome No. 17, (Figure 3). These changes may precede by long periods of time (e.g., months to a year) any clinical, cytologic or laboratory evidence of the blastic phase. Following CML patients with an examination of chromosomes in the circulating blood cells thus appears to be a practical approach to monitoring the course of CML, particularly in relation to the blastic phase.

In some patients with CML the genesis of the cells associated with the blastic phase occurs in

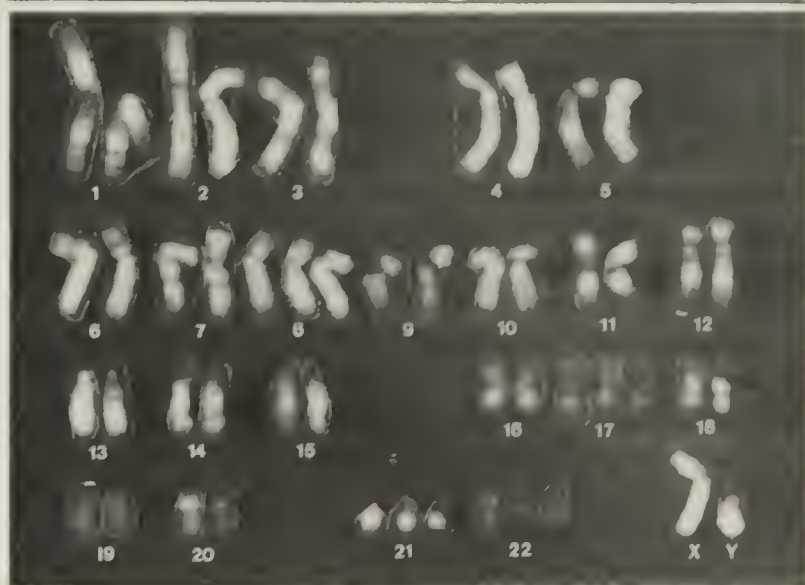


Figure 3A

Karyotype of a marrow cell from a patient with Ph<sup>1</sup>-positive CML in blastic crisis. A rather common feature of the chromosomes during the blastic crisis is their fuzzy and ill-defined appearance, shown in the figure. Several changes commonly seen prior to, or associated with the blastic phase of CML are present: +8, an iso-17 and an extra Ph<sup>1</sup>.



Figure 3B

Karyotype of a marrow cell from a patient in the blastic phase of Ph<sup>1</sup>-positive CML containing some of the changes, in addition to the Ph<sup>1</sup>, heralding that phase or associated with it. In this case the changes include +8, +11, +13 and two extra chromosomes in group 21.

extramedullary sites. These cells may find themselves in the circulation prior to their being recognized in the marrow. Examining the circulating blood cells affords, under these conditions another advantage over examining the marrow.

Though the suitability and advantages of examining the chromosomes of blood cells in CML have been indicated, it should be pointed out that the examination of the marrow, whenever possible, constitutes an optimal approach, though it does subject the patient to the pain and inconvenience associated with bone marrow aspiration. However, the establishment of such anomalies as a missing Y chromosome, which appears to

be associated with a better prognosis in males with CML, is best established in bone marrow material. Likewise, the presence of cytogenetically normal cells is best determined in bone marrow.

#### Protocol

The protocol we recommend with CML patients is as follows:

1. Initial chromosome analysis on bone marrow cells prior to therapy.
2. Monitor the patient's chromosomes in circulating blood cells.
3. Monitor chromosome changes also in bone marrow cells, whenever obtained.

#### Time Elements in the Cytogenetic Studies of CML

The clinician wishing to know whether a case of CML is Ph<sup>1</sup>-positive or Ph<sup>1</sup>-negative can and should be supplied with the answer within 24 hours after the sample of marrow is obtained for analysis. Suspicion of impending or developing blastic phase can be usually established within 24 hours.

Detailed karyotypic analysis, particularly that based on banding techniques, *in vitro* culture of marrow material which on direct analysis does not contain metaphases suitable for chromosome analysis or in insufficient numbers, and some of the more specialized approaches, (e.g., determination of the frequency of sister chromatid exchanges), may require three to seven days for analysis.

#### Materials and Salient Features of Chromosome Analysis in CML

Generally, about 0.5 cc of aspirated marrow or 3 cc of blood are necessary for chromosomal analysis (Tables 1 and 2). These samples when obtained should be put in a sterile green-top tube containing a small amount of heparin to prevent coagulation and kept at room temperature before being examined. Refrigeration leads to less than optimal results. Freezing of the samples will destroy the cells and, thus, destroys the success of cytogenetic analysis. It has been found that both bone marrow and blood samples can be sent unrefrigerated by plane and other modes of transportation for long distances, and then can be readily examined for their chromosome constitution. The information obtained through such an analysis is of value in the following parameters:

1. Establish whether the CML is Ph<sup>1</sup>-positive or Ph<sup>1</sup>-negative. These findings bear upon the prognosis of the disease and also on the type of therapy to be used.
2. Frequent monitoring of the chromosome findings, preferably at least monthly, either with bone marrow and/or blood cells. This is of value in ascertaining whether the patient's clinical picture is changing, and particularly in anticipating the development of the blastic phase.
3. Monitoring of the cytogenetic findings in the blastic phase. This will reveal a possible reversion of the cytogenetic picture existing before that phase is otherwise evidenced in patients who respond to therapy.

Since there is a strong likelihood that success in treating the blastic phase in CML in the future will be more frequent and lasting, such cytogenetic analysis are of value to the clinician.

4. Since the ultimate aim in treating leukemia is to obtain normality, return to normal can be ascertained promptly first through cytogenetic analysis of the marrow and/or blood cells.

#### Some Unusual Features of CML Mimicking Other Types of Leukemia

Cytogenetic findings, particularly the presence of the Ph<sup>1</sup>, have indicated that in rare cases of CML the patient may present with a picture very similar to acute myeloblastic leukemia. The chronic phase in these patients is of a very short duration or is nonexistent. The cytogenetic findings indicate the true diagnosis.

Cytogenetic analysis in such unusual patients will reveal that the patient has presented initially in a blast phase of CML, rather than with an acute leukemia. The patient can be treated accordingly.

Under other circumstances, patients with CML may develop a blastic phase with a picture very much resembling that of acute lymphoblastic leukemia (ALL). The blasts may have all the features of lymphoblast seen in ALL. However, examination of the chromosomes will invariably reveal the presence of a Ph chromosome and so lead to the correct diagnosis. A lymphoid blastic phase in CML in children has been mistaken for ALL and only recognized when the patient failed to respond to therapy. The diagnosis has then been belatedly established upon cytogenetic studies.

The most common error today is to do a single solitary chromosome study in CML and then never study the patient's chromosomes again. If the length and quality of life are to be optimal today in CML, one must repeatedly monitor chromosomes in a patient with CML. Cytogenetic studies are essential to the contemporary management of CML.

#### References

1. Sandberg AA: *The Chromosomes in Human Cancer and Leukemia* Elsevier North-Holland, New York 1980.
2. First International Workshop on Chromosomes in Leukemia (1977): Chromosomes in Ph<sup>1</sup>-positive chronic granulocytic leukaemia. *Br J Haematol* 39:305-309, 1978.
3. Sandberg AA: The cytogenetics of chronic myelocytic leukemia (CML): Chronic phase and blastic crisis. *Cancer Genet Cytogenet* 1:217-228, 1980.





## Invasive Carcinoma of the Cervix Treated Primarily with Radiation Therapy: University of Arizona Experience

Silvio A. Aristizabal, M.D.  
Richard J. Giever, M.D.  
Antonio Duque, M.D.  
Earl Surwit, M.D.

Editors:  
David S. Alberts, M.D.  
Ellen M. Chase, B.S.

### Abstract

From August 1971 through June 1980, 208 patients with invasive cancer of the cervix were treated at the University of Arizona Health Sciences Center. The distribution by stage was: stage I, 90 patients; stage II, 71 patients; stage III, 38 patients; and stage IV, 9 patients. The 5-year actuarial survival by stage was: stage I, 88%; stage II, 66%; stage III, 28%; and stage IV, 23%. Adjuvant surgery in patients with non-barrel lesions did not result in an improved control rate. Of those patients who failed treatment, 71% had recurrent disease in the pelvis. This indicates the need for improved local and regional therapy. The total complication rate was 9.1%.

### Introduction

Despite the development and popularization of the "Pap" smear cervical cytology test, the incidence of invasive cervical cancer is 16,000 new cases a year. It is the sixth most common malignancy and the sixth cancer killer of women in this country.<sup>1</sup>

Radiation, surgery, or a combination of both modalities may be utilized in the primary treatment of this disease. The therapeutic approach is best determined after careful evaluation of the individual patient.

From: University of Arizona Health Sciences Center, Tucson, Arizona 85724. Dr. Aristizabal, Associate Professor of Radiology, Dr. Giever, Resident, Division of Radiation Oncology; Dr. Surwit, Assistant Professor of Obstetrics and Gynecology, Director of Gynecologic Oncology, University of Arizona; Dr. Duque, Hospital San Vicente, Servicio de Radioterapia, Medellin, Colombia, South America.

Table 1\*  
Staging Classification

|           |                                                                                                                                                  |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Stage 0   | Carcinoma <i>in situ</i> , intraepithelial carcinoma.                                                                                            |
| Stage I   | Carcinoma is strictly confined to the cervix.                                                                                                    |
| Ia        | Microinvasive carcinoma (early stromal invasion).                                                                                                |
| Ib        | All other cases of stage I.                                                                                                                      |
| Stage II  | Carcinoma extends beyond the cervix but not to the pelvic wall and/or involves the vagina, but not the lower third.                              |
| IIa       | No obvious parametrial involvement.                                                                                                              |
| IIb       | Obvious parametrial involvement.                                                                                                                 |
| Stage III | Carcinoma extends to the pelvic wall and/or to the lower third of the vagina. Cases with a hydronephrosis or nonfunctioning kidney are included. |
| IIIa      | No extension to the pelvic wall.                                                                                                                 |
| IIIb      | Extension to the pelvic wall and/or hydronephrosis or nonfunctioning kidney.                                                                     |
| Stage IV  | Carcinoma extends beyond the true pelvis or clinically involves the mucosa of the bladder or rectum.                                             |
| IVa       | Spread of the growth to the bladder or rectum.                                                                                                   |
| IVb       | Spread to distant organs.                                                                                                                        |

\*FIGO System.<sup>2</sup>

The present retrospective analysis was conducted at the Arizona Health Sciences Center (AHSC) to assess the results of radiation therapy and to determine the etiology and sites of failure. This data will be utilized in the design of new treatment strategies.

### Patients and Procedures

From August of 1972 through June of 1980, 208 patients with pathologically documented invasive cancer of the cervix were evaluated and treated primarily with radiation in the Division of Radiation Oncology. A total of 51 patients with stage I or II disease had a hysterectomy as part of the primary treatment. In 38 patients, surgery followed radiation and in 13 patients surgery preceded radiation. Only 12 of the patients receiving surgery had what was described as a "barrel-shaped" lesion.

All patients underwent a full staging evaluation prior to the initiation of treatment. Staging included a complete history, physical examination, hemogram, urinalysis, renal function tests, chest x-ray, IVP, cystoscopy, and, in selected cases, rectosigmoidoscopy. A pelvic examination was performed jointly by a radiation oncologist and a gynecologic oncologist. Patients were staged according to the FIGO system (Table 1).<sup>2</sup>

The main objective of the radiation treatment is to deliver a high dose to the tumor area while at the same time preserving the integrity of the normal tissues. To

be successful, the following principles must be observed:

1. A tumoricidal dose of radiation must be delivered to the visible and palpable tumor as well as to the likely areas of extension.
2. Particular attention must be given to the volume of tissue receiving a high dose. A large dose to a large volume produces a high incidence of complications.
3. The dose delivered to the bladder and rectum should not exceed their tolerance, which is considerably less than that of the cervix and vagina. Intracavitary radiation is the best means for delivering a high central tumor dose while minimizing the dose to the bladder and rectum.

Patients selected for irradiation at AHSC usually received external irradiation first, followed by one to two applications of intracavitary radiation. The dose and sequence depended on the extent of the tumor and local anatomical conditions. While some flexibility was permitted, every effort was made to follow a set therapeutic plan. The details of the radium loading and dosimetry will not be discussed here, but we will point out our usual treatment sequence and doses:

**Stage I:** A lesion measuring 1 cm or less is treated by two applications of radium, 8000-9000 rads to Point A (2cm superior and 2 cm lateral to the cervical os). In more extensive lesions, additional parametrial and regional node external irradiation is given to 4500-5000 rads. Bulky and "barrel-shaped" tumors are given whole-pelvis external irradiation to 4500 rads prior to intracavitary radium. A simple hysterectomy follows in 4-6 weeks.

**Stage II:** Early tumors without anatomical distortion are treated like extensive stage I lesions. In more advanced tumors, the whole pelvis is irradiated to 4500 rads prior to intracavitary radium.

**Stage III and IV:** Whole-pelvis external irradiation is given from 4500 — 7000 rads. This may be followed by one to two intracavitary implants.

All external radiation was delivered with megavoltage units (4 or 10 MeV linear accelerators). For the intracavitary treatments, uterine tandems and vaginal ovoids (Fletcher-Suit type) loaded with radium sources were used in the majority of cases.

## Results

The mean age of the patients studied was 54 years with a range from 27 to 87 years. Squamous cell carcinoma was the most common histological type, occurring in 85% of the cases. This was followed by adenocarcinoma (14%) and adenosquamous carcinoma (1%). Ninety patients had stage I disease, 71 had stage II disease, 38 had stage III disease, and 9 had stage IV disease. The actuarial survival by stage is shown in Figure 1. When patients were analyzed for site of recurrence, 71% of those with recurrence were found to have tumor in the pelvis. Only 29% had a distant metastasis as the only site of recurrence (Table 2). The failure rate correlated with the stage of the tumor and ranged from 9% in stage I to 89% in stage IV. The

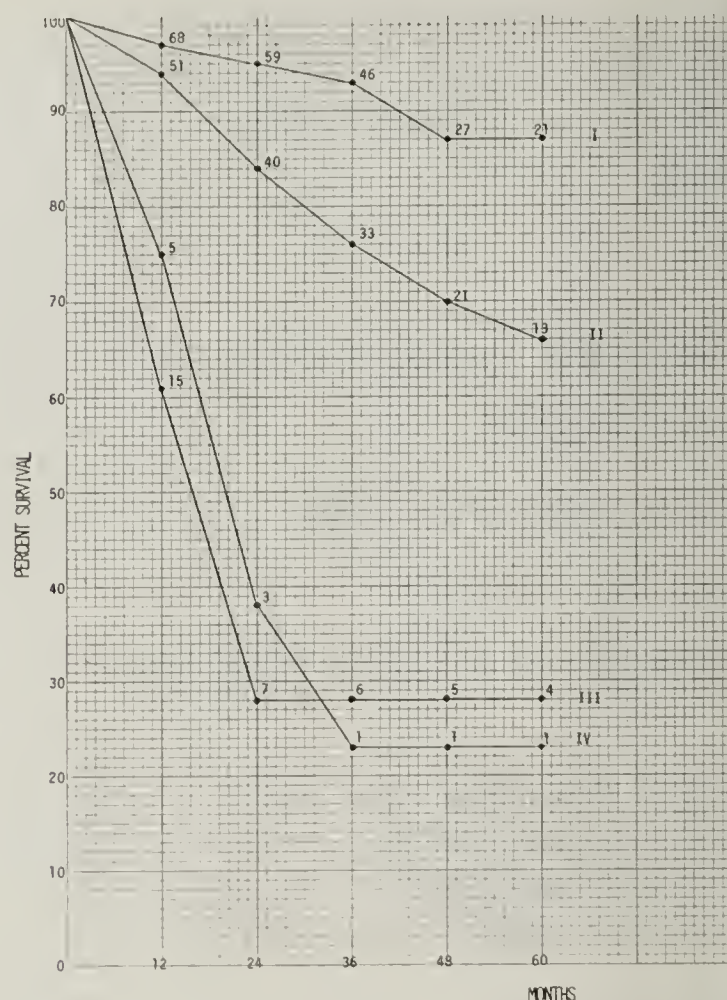


Figure 1  
Actuarial survival by stage of disease for patients with invasive carcinoma of the cervix treated primarily with radiation therapy at the University of Arizona.

Table 2  
Treatment Failures

| Stage | No. Pts. (%) | % Pts with Recurrence | % Pelvic Failures | % of Total Failures in Pelvis |
|-------|--------------|-----------------------|-------------------|-------------------------------|
| I     | 90 (43.3)    | 9                     | 6.6               | 73.5                          |
| II    | 71 (34.1)    | 29.6                  | 20.               | 67.5                          |
| III   | 38 (18.3)    | 60.5                  | 50                | 83                            |
| IV    | 9 ( 4.3)     | 89                    | 45                | 50                            |
| Total | 208          | 29                    | 20.6              | 71                            |

Table 3  
Treatment Failures by Therapy

| Stage | Therapy              | No. Treated | % Recurrent Tumor |
|-------|----------------------|-------------|-------------------|
| I     | Radiation            | 58          | 6.9 ( 4/58)       |
|       | Surgery + Radiation* | 24          | 8.3 ( 2/24)       |
| II    | Radiation            | 52          | 26.9 (14/52)      |
|       | Surgery + Radiation* | 15          | 33.3 ( 5/15)      |

\*"Barrel" lesions excluded



addition of surgery to radiation in patients without bulky or "barrel-shaped" lesions appeared not to have significant effect on the local recurrence rate (Table 3).

The complication rate was 9.1%. Radiation cystitis and proctitis developed in 1.4% and 3.8% of patients, respectively (Table 4). Four rectovaginal fistulas and one vesicovaginal fistula occurred. All of the fistulas developed in patients with stage III or IV disease.

#### Discussion

Despite improvements in diagnosis and treatment during the last three decades, cancer of the cervix still produces significant morbidity and mortality in the female population. The high death rate (7,400 of 16,000 [46%]) reflects the fact that many patients present in advanced stages for which standard radiation treatment is less effective.

The survival at AHSC is similar to that obtained with radiation therapy at other institutions<sup>3-5</sup> (Table 5). The excellent survival in stage I patients indicates that invasive cancer of the cervix in its early stages is a highly curable disease with radiation. As the size of the local tumor advances, the frequency of lymph node involvement increases,<sup>6</sup> and it is not surprising therefore that the percentage of cures progressively decreases in the higher stages.

Analysis of failures showed that most occurred in the pelvis. In most of these cases, the local recurrence was the only manifestation of disease. This suggests that if more effective local treatment could be developed, this would probably result in increased survival. Our data as well as that of others<sup>7</sup> indicates that the main cause of death in patients with cancer of the cervix is pelvic recurrence. In the past, efforts to improve results by increasing the radiation dose with conventional external or intracavitary sources, or by extending the radiation fields to cover the periaortic nodes, have been hampered by increased morbidity with no significant impact on overall survival.

Recently, physicians at the University of Maryland<sup>8</sup> reported a marked improvement in results by using a radium needle implant to supplement the dose of radiation to the parametrium. In a group of patients with stage IIIB cancers, they were able to increase the local tumor control from 49% to 78% using this technique. The overall survival at three years after therapy rose from 49% to 78% in those patients treated with the radium needle implant. A 70% relapse-free survival has

Table 4  
Complications

| Complication                 | Pts. Affected | % of Total Treated |
|------------------------------|---------------|--------------------|
| Proctitis                    | 8             | 3.8                |
| Rectovaginal<br>Fistulas     | 4             | 1.9                |
| Vaginal Reaction<br>or Ulcer | 4             | 1.9                |
| Surgical Corrections         | 4             | 1.9                |
| Cystitis                     | 3             | 1.4                |
| Small Bowel                  | 3             | 1.4                |
| Vesicovaginal<br>Fistulas    | 1             | 0.5                |
| Deaths                       | 2             | 1.0                |
| <b>Total</b>                 | <b>19*</b>    | <b>9.1*</b>        |

\*Some patients had more than one complication.

also been reported by Feder and Syed<sup>9</sup> using the transperineal interstitial implant to boost parametrial areas. These researchers did not report any increased morbidity from their procedures.

The addition of surgery after definitive radiation therapy is recommended for stage I and stage II patients with "barrel-shaped" lesions. These patients were found to have an increased relapse rate if treated with radiation alone.<sup>10</sup> There appears, however, to be no additional improvement in control in those patients without "barrel-shaped" lesions.<sup>11,12</sup> These findings were confirmed in our series as well.

The complication rate in our series was low (9.1%) and was slightly below that reported by Bosch<sup>13</sup> in a large series (12.7%). The patients who developed fistulas all had advanced tumors. Four patients required surgical correction for their complications. Two deaths were secondary to complications and were associated with extended field of radiation to cover the periaortic lymph nodes.

#### Conclusions

1. Carcinoma of the cervix is a significant cause of morbidity and mortality in women.

2. Radiation therapy is an effective means of treating this disease, and in early stages it offers a high probability of cure. Adjuvant surgery for non-"barrel" lesions does not improve control rates.

3. Control in advanced tumors (stage III and IV) may be achieved but more work is needed to improve the

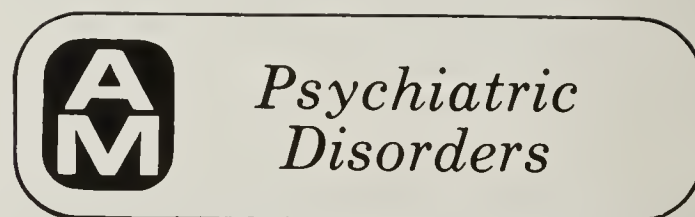
Table 5  
% 5-Year Survival By Stage of Disease

| Stage | University of Arizona | Hahnemann<br>Medical College <sup>5</sup><br>Philadelphia, Pa. | M.D. Anderson <sup>3</sup> | Oncologic Hospital <sup>4</sup><br>Puerto Rico |
|-------|-----------------------|----------------------------------------------------------------|----------------------------|------------------------------------------------|
| I     | 87.8                  | 89                                                             | 91.5                       | 88                                             |
| II    | 66.0                  | 64                                                             | 66.5-83.5                  | 61                                             |
| III   | 28.3                  | 52                                                             | 36-45                      | 35                                             |
| IV    | 22.5                  | 12                                                             | 14                         | 19                                             |

survival of these patients. Currently, more research is being conducted at the AHSC Division of Radiation Oncology using interstitial transperineal implantation of the parametrium with radioactive sources alone or in combination with hyperthermia in patients with advanced disease.

#### References

1. Silverberg E: Cancer statistics, 1979. *Ca - A Cancer Journal for Clinicians* 29:6-21, 1979.
2. Kottmeier HL: Classification and staging of malignant tumors in the female pelvis. *J Int Fed Gynecol Obstet* 9:172-179, 1971.
3. Fletcher G: Cancer of the Uterine Cervix. *Am J Roent Rad Ther Nu Med* 111:225-242, 1971.
4. Marcial V: Carcinoma of the cervix - present status and future. *Cancer* 39:945-958, 1977.
5. Brady L: Surgery or radiation therapy for stage I and IIa Carcinoma of the cervix. *Int J Rad Onc Biol Phys* 5:1877-1879, 1979.
6. Lagasse L, et al: Results and complications of operative staging in cervical cancer: Experience of the Gynecologic Oncology Group. *Gynecol Onc* 9:90-98, 1980.
7. Van Nagell JR, Jr, et al: Therapeutic implications of patterns of recurrence in cancer of the uterine cervix. *Cancer* 44:2354-2361, 1979.
8. Prempre T, Scott RM: Treatment of stage IIIb carcinoma of the cervix. Improvement in local control by radium needles implant to supplement the dose to the parametrium. *Cancer* 42:1105-1113, 1978.
9. Feder B, Syed N, Neblett D: Treatment of extensive carcinoma of the cervix with the "transperineal parametrial butterfly." *Int J Rad Onc Biol Phys* 4:735-742, 1978.
10. Fletcher GH: *Textbook of Radiotherapy*, Lea and Febiger, Philadelphia, 1980.
11. Rotman M, et al: Limitations of adjunctive surgery in carcinoma of the cervix. *Int J Rad Onc Biol Phys* 5:327-332, 1979.
12. Tavares M, et al: Treatment of stages I and II cancer of the cervix: Analysis of 5 year survival and recurrence rates. *Int J Rad Onc Biol Phys* 5:361-366, 1979.
13. Bosch A, Frias Z: Complications after radiation therapy for cervical cancer. *Acta Radiol Ther Phys Biol* 16:53-62, 1977.



## Malingering

Warren F. Gorman, M.D., F.A.C.P.

Editor:  
Thomas E. Bittker, M.D.

### Abstract

Malingering is the false and fraudulent simulation or exaggeration of physical or mental disease or disorder, is also called shamming illness, simulation or dissimulation, goldbricking, faking disease or faking normalcy. Malingering is not a disease or disorder but may coexist with objectively diagnosed disease or disorder; its purpose is to receive medical or surgical attention, obtain money or drugs or evade duty or criminal responsibility. The purpose is readily recognizable by the examiner's understanding the present environmental circumstances, unlike the neuroses. Maneuvers for detecting and reporting malingering are given.

From: Carinito Rosa, La Jolla, California 92037.



Malingering - or shamming illness - is a common phenomenon<sup>1</sup> which is neither a disease nor a mental disorder,<sup>2</sup> but since it may coexist with a disease or mental disorder, should be indentifiable by physicians. Synonyms of malingering include goldbricking, faking, simulation and dissimulation.<sup>3</sup> The purpose of malingering is to receive medical or surgical attention, to obtain money or drugs, to evade duty or criminal responsibility. Conditions which coexist with malingering include the traumatic neuroses, personality disorders, the hysterias, factitious disorders and Münchausen's syndrome and the diagnosis of no mental disorder.<sup>2</sup>

A standard medical definition of malingering is the false and fraudulent simulation or exaggeration of physical or mental disease.<sup>4</sup> Thus a man who was accused of a crime was found by the jury to have thrown fraudulent fit, when he secreted soap under his tongue and then quite vigorously thrashed about, foaming at the mouth.<sup>5</sup> Miller and Cartlidge's definition includes: 1) simulation of disease or disability, 2) gross exaggeration of a minor disability, 3) attributing an objectively verifiable disability to an accident or injury that did not use it.<sup>6</sup>

The American Psychiatric Association's Diagnostic Manual<sup>2</sup> which uses objective, behavioral criteria for psychiatric diagnosis, clearly distinguishes malingering from mental disorders by placing malingering first on a list of thirteen items which are not attributable to mental disorder, such as marital conflict or uncomplicated bereavement. Malingering is defined as the voluntary production and presentation of false or grossly exaggerated physical or psychological symptoms. The symptoms are produced in pursuit of a goal which is obviously recognizable by understanding the individual's circumstances, rather than through understanding his individual psychology. This excellent psychiatric manual urges the physician to be suspicious of malingering on discovering any combination of the following: 1) medicolegal context, 2) marked discrepancy between the objective findings and the claimed distress or disability, 3) lack of cooperation with diagnostic or treatment regimens, 4) presence of Antisocial Personality Disorder.

In the Antisocial Personality Disorder, which is found in three percent of U.S. males, the patient usually shows a lifelong pattern of antisocial behavior, beginning before age 15, typically with childhood lying, stealing and resisting authority, adolescent hyperaggressive sexual behavior, excessive drinking and use of illicit drugs, with adult continuance of these patterns, inability to sustain consistent work performance or to function as a responsible parent, with failure to accept social norms of lawful behavior.

An individual, at one time, may both malingering and also have one or more objectively diagnosable physical or mental disorders. This is more familiar to practitioners of medicine, including psychiatric medicine, which uses

multiple diagnoses to account for abnormal behaviors and psychological symptoms, than to practitioners of the law, which permits only a single proximate cause for any event at bar. A person who is adjudicated mentally ill may malingering sanity.<sup>7</sup> An individual accused of a crime may malingering the insanity defense.

Normal children can tell tall tales;<sup>8</sup> children malingering in hospitals and schools<sup>9</sup> by feigning, at a socioethnic border, a nonexistent mental retardation.

A researcher could have malingering an "existential psychosis" a term which he did not define and which does not appear in the literature,<sup>10</sup> to have himself and students admitted to mental hospitals. Experimenters deceived their students and the student's friends, into believing that a horoscope from a newstand astrology book gave their correct diagnoses.<sup>11</sup>

An extremely small number of writers on the subject have suggested that if a person malingering, he must therefore be mentally ill, labeling malingering focal suicide.<sup>12</sup>

### The Fakes

On personality testing, common wisdom tells us that normal people can attempt to appear normal where they are not, or to conform, or even to appear sick; a popular book<sup>13</sup> contains an appendix, "How to Cheat on Personality Tests." The British describe this form of malingering as dissimulation or simulation<sup>14</sup> while Americans call it faking good or faking sick. The Rorschach Psychodiagnostic Test can successfully be faked sick.<sup>15</sup> Faking sick on the Minnesota Multiphasic Personality Inventory, after coaching from the MMPI Manual, could sometimes, but not frequently, be detected.<sup>14</sup> Faking organic brain damage on psychological testing, however, can readily be detected.<sup>15</sup>

### Maneuvers and Pitfalls

Maneuvers in detection of malingering are often neurologic or psychiatric. Simulation of total blindness in one eye will be proven if the assertedly blind eye, with the other eye covered, shows nystagmus on exposure to moving awning stripes, or a nystagmus drum, across the visual field. Simulation of total bilateral deafness can be proven during the EEG, when the patient has entered Stage 1 sleep and the technician drops a large, empty, stainless steel bedpan on the hard hospital floor. Simulated anesthesia of one side of the body, usually the left, can be proven when the examiner artfully crosses the examinee's arm or leg, or with a tuning fork. Application of a vibrating tuning fork to one side of the forehead vibrates both sides. Glove anesthesia or hypesthesia appears often in malingering.

Paralysis of the dominant hand in a heavy smoker is belied by the smell and staining of those fingers. If one leg is weak due to pyramidal tract disease of the spinal cord or brain, when the patient lifts up the good leg, the paretic leg reflexly moves downward; in malingering such weakness the patient does not move the assertedly weak leg.

But beware of multiple sclerosis. This disseminated demyelinating disease, the most common intrinsic disease of the nervous system, often is mistaken for hysteria or faking.<sup>16</sup>

Psychiatric pitfalls in detecting malingering are principally the hysterias and factitious disorders. Factitious (or man-made) disorders and malingering both feature acts which are under voluntary control, but in factitious disorders, such as Munchausen's syndrome, these acts are not readily recognizable in light of the individual's specific circumstances. In malingering, done to obtain medical attention, money, drugs, or evade duty or legal responsibility, the purpose is readily recognizable and understandable. These terms are clearly defined in objective language in the Diagnostic Manual,<sup>2</sup> but consultation with a diagnostic psychiatrist may be necessary.

Treatment of malingering is not successful. Patients who have treatable conditions and who also malingering, often leave treatment when their malingering becomes apparent.<sup>17</sup>

### Reporting

Should the physician record the act of malingering, along with his diagnoses, particularly when insurance companies and other third parties have access to medical records?

If the physician fails to record a significant act of malingering, this failure may possibly permit another person to assume that a genuine diagnosis made by the doctor accounts for the malingered symptom. On the other hand, recording the findings of examination can obviate the need to note that a symptom is malingered, for example, a whiplash patient complained that he could not rotate his neck, but when distracted during examination, did rotate it. Similarly, a patient who complained of foot drop and correctly demonstrated this abnormality to the examiner, was noted to be wearing a well-worn pair of shoes that did not show any marks of foot drop. I record such behaviors, but do not use the term malingering unless it is legally permissible.

To prove malingering, the physician must describe the symptom or sign, plus the results of the method he used to prove it was malingered. Unless the examinee shows several proven instances of malingering, it is not necessary to identify him as a malingerer.

In such cases and in general, until the doctor becomes familiar with the rules of confidentiality and privilege,<sup>18,19</sup> he should make no disclosures on malingering, oral or written. Even if the physician has been briefed by a competent, friendly attorney,<sup>20</sup> he should follow the rule of parsimony — be extremely brief.

### References

1. Naish JM: Problems of deception in medical practice. *Lancet* 2:139-142, 1979. Baro W: Head and back injuries. *Indust Med Surg* 19:69-71, 1950.
2. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders. 3rd Edition, Washington, D. 1980.
3. The word may be derived from *malinger*, French = sickly, or *La malus aeger* = evil disposition.
4. Condensed from Dorland's Medical Dictionary and Stedman Medical Dictionary.
5. Keschner M: Malingering. In: *Injuries of the Brain and Spinal Cord*. Brock S (ed), New York, Springer, Chapt. 14, 1960.
6. Miller H, Carlidge N: Simulation and malingering in relation to injuries of the brain and spinal cord. In: *Brock's Injuries of the Brain and Spinal Cord*. Feiring E (ed), New York, Springer, 1974.
7. Halleck S: The criminal's problem with psychiatry. In: *Reading Law and Psychiatry*. Allen RC, et al (eds), Johns Hopkins Press, pp 54, 1975.
8. Gorman WF: Tall tales and imaginary companions. *JAMA* 233:367, 1975.
9. Creer TL: Managing a hospital problem: Malingering. *J Behav T and Exp Psychiat* 5:259-262, 1974. Soiffer A: Children who deceive psychologists. *J Clin Psychol* 4:27-28, 1975. Scott M: Wishing will make it so. *Ment Retard* 13:27, 1975.
10. Rosenhan DL: On being sane in insane places. *Science* 179:258, 1973. Wolitzky DL: Insane vs feigned insane: A reply to I. DL Rosenhan. *J Psychiat Law* 1:463-473, 1975. Spitzer RL: More pseudoscience. *Arch Gen Psychiat* 33:459-470, 1976.
11. Kelly DM: Clinical reality and projective technique. *Amer J Psychol* 107:753-7, 1951. Forer BR: The fallacy of personal validation: classroom demonstration of gullibility. *J Abnorm Soc Psychol* 44:118-123, 1949. Sundberg ND: The acceptability of fake a bonafide personality test interpretations. *J Abnorm Soc Psychol* 50:145-7, 1955.
12. Diamond B: The simulation of sanity. *J Soc Ther* 2:158-165, 1956. Menninger KA: *The Vital Balance*, New York, Viking p. 20, 1963. Menninger KA: *Man Against Himself*, New York, Harcourt, 1938, 1956.
13. Whyte Jr. WM: *The Organization Man*. New York, Simon and Schuster, 1956.
14. Eysenck SBC: Eysenck HJ: Attitudes to sex, personality and scale scores. *Percept Mot Skills* 33:216-218, 1971. Power R, O'Donovan D: Detection of simulation on the MPI by subject given the rationale of the lie scale. *Br J Psychol* 66:535-541, 1975.
15. Maloney MP, Glasser AO, Ward MP: Malingering: An Overview. Symposium, University of Southern California, Institute of Psychiatry and Law (Dr S Pollack), June, 1980. Bruhn AR, Re MR: Simulation of brain damage on the Bender-Gestalt test of college students. *J Personal Assess* 39:244-255, 1975.
16. Aring CD: Observation on multiple sclerosis and conversion hysteria. *Brain* 88:663, 1965. Bruce AN: *Wilson's Neurology*. Baltimore, Williams and Wilkins, pp 167-8, 1941.
17. Bursten B: On Munchausen's syndrome. *Arch Gen Psychiat* 13:268, 1965.
18. Arizona Revised Statutes, 12- 2235 and 13- 4062(A).
19. Holder AR: *Medical Malpractice Law*. New York, Wiley, 2nd Edition, 1978.
20. Kaufman RW: Attorney's requests for patient records. *Arizona Medicine* 37:707-708, 1980.



## Case of the Month No. 52

Lloyd Brenden, B.S., M.S.  
Jonathan M. Levy, M.D.  
Samuel J. Hessel, M.D.  
Gregory W. Prian, M.D.

Editors:  
Jonathan Levy, M.D.  
Gerald Pond, M.D.

A 26 year old lady was seen in the emergency room after an automobile accident. Because of findings on her chest film (Figure 1), a CT scan of the chest was done (Figure 2).

What are the chest film findings?

What do you suspect?

Does the CT scan confirm your suspicions?

What test(s) might be done to confirm your suspicions?

From: The University of Arizona College of Medicine, Tucson, Arizona (Mr. Brenden). And, from Scottsdale Memorial Hospital, Department of Radiology (Drs. Levy and Hessel), Department of Cardiovascular Surgery (Dr. Prian). Reprint requests to Dr. Levy, Scottsdale Memorial Hospital, Department of Radiology, 7400 East McDowell, Scottsdale, Arizona 85251.



Figure 1  
Chest film



Figure 2  
CT scan of the chest

Continued on next page →

## ANSWER: Traumatic Rupture of the Thoracic Aorta.

Traumatic rupture of the thoracic aorta has increased in incidence because of high speed travel. Only 10% to 20% of accident victims with ruptured aorta survive the initial injury, the rest dying of rapid exsanguination. In the survivors, the aortic tear extends through the intima and media but not through the adventitia, thereby forming a false aneurysm. This may rupture at any time thereafter, and 90% of patients will die within four months without surgery.

Any patient with mediastinal widening after trauma should be suspected of having aortic rupture. Other plain film signs include tracheal shift to the right, blurring of the aortic outline, opacification of the clear space between aorta and left main pulmonary artery and depression of the left main stem bronchus. (Many of these findings are present to some degree in Figure 1). CT scan confirms blood in the peri-aortic and pleural spaces (arrows, Figure 2). The definitive test is thoracic aortography, which shows the pseudoaneurysm of the aorta, usually extending distally from the origin of the left subclavian artery (Figure 3). The ascending aorta or distal thoracic aorta may also rupture, but these are less common injuries.

Early diagnosis and surgical repair of ruptured thoracic aorta is essential for survival. Two thirds or more of patients with isthmus ruptures are salvageable with early surgery. Operative treatment consists of repairing the aorta, usually with a woven Dacron graft. Complete cardiopulmonary bypass is not always necessary, but should be quickly available if needed. Our patient was taken to the operating room immediately after the aortogram, and the rupture was repaired. She is now doing well.



**Figure 3**  
Thoracic aortogram shows rupture extending from the origin of the left subclavian artery (arrows).

### References

1. Greendyke RM: Traumatic rupture of the aorta: Special reference to automobile accidents. *JAMA* 195:527-530, 1966.
2. Beel T, Harwood AL: Traumatic rupture of the aorta. *Ann Emerg Med* 9:483-486, 1980.
3. Kirsh MM, Behrendt DM, Orringer MB, et al: The treatment of acute traumatic rupture of the aorta: A 10 year experience. *Am Surg* 184:308-316, 1976.
4. Sevvitt S: The mechanisms of traumatic rupture of the thoracic aorta. *Br J Surg* 64:166-173, 1977.
5. Peters DR, Gamsu G: Displacement of the right paraspinal interface: A radiographic sign of acute traumatic rupture of the thoracic aorta. *Radiology* 134:599-603, 1980.
6. Sturn JT, Marsh DG, Bodily KC: Ruptured thoracic aorta: Evolving radiological concepts. *Surgery* 85:363-367, 1979.





# Orbital Floor "Blowout" Fractures

## Clinical Management

Wayne W. Bixenman, M.D.

Editor:  
Jack A. Friedland, M.D.

### Abstract

Whether patients in general with orbital blowout fractures should be managed with early surgical exploration and repair of the defect, or whether expectant, nonsurgical management is the preferable approach, remains a controversial topic. A review of the recent literature indicates that early surgical repair for the majority of these cases has not lived up to its original expectations of preventing persistent diplopia and the late appearance of enophthalmos, has not been shown essential in restoring single vision in a functional gaze position, and has not been proven to give results superior to conservative, nonsurgical management.

An approach to the clinical management of patients with orbital blowout fractures is reviewed. Emphasis is on the nonsurgical management in the initial period with surgical alternatives only after a sufficient follow-up period.

There are definite indications for early surgical repair but only in a minority of cases. The validity of many of the reported indications for early surgery is open to question. Well-controlled, prospective studies are required if the controversy over surgical versus nonsurgical management is to be resolved.

From: 1500 North Wilmot Road, Suite 130, Tucson, Arizona 85712. Presented at the Tucson Ophthalmology Society Conference, St. Joseph's Hospital, Tucson, Arizona, January 28, 1981

### Introduction

The clinical management of orbital floor blowout fractures remains one of the bastions of controversy in modern ophthalmology. The purpose of this report is to present a review of the reported experience in the literature, to review the problems related to the interpretation of the clinical findings, and to offer an approach to the clinical management of these patients.

Historically, we owe the first mention of orbital fractures in the literature to W. MacKenzie in 1844.<sup>1</sup> Forty-five years later in 1889, W. Lang provided the first clinical case description.<sup>2</sup> P. L. Pfeiffer in 1943, offered the first reasonable theory on the pathogenesis of the clinical manifestations.<sup>3</sup>

It is however, the paper by B. Smith and W. F. Regan in 1957 that is considered the classic.<sup>3</sup> From their cadaver work evolved the concept that the restricted motility, diplopia and enophthalmos are caused by actual incarceration of orbital tissues (specifically the inferior rectus muscle) into the fracture site. The term "blowout fracture" was coined; it and the concept of the pathogenesis remain with us to the present.

From their work, it was proposed that the surgical exploration of all blowout fractures should be performed within the first seven days after injury. The reasons were threefold: 1) early surgery and repair of the defect would prevent the diplopia that would otherwise be permanent; 2) early surgery and repair would prevent the disfiguring enophthalmos that the patient otherwise ran the risk of developing; and 3) early surgery would avoid the technical difficulties due to scarring, that would develop in time.

Considering mankind's history of aggression, one can only be amazed at the magnitude of human suffering due to the double vision and disfiguring enophthalmos, as a consequence of surgically untreated blowout fractures, that must have been present prior to the period that began in 1957. Our forefathers in ophthalmology were very astute observers, yet how did this invariable result (or so we were led to believe) escape their attention?

In any event, Smith and Regan developed what had become the working guidelines of most practicing clinicians and in fact, they are still used by many today. The feeling that "the surgical procedure (of repairing orbital blowout fractures) is relatively simple and benign and the prognosis is excellent"<sup>5</sup> prevails in the minds of many.

At present, a major controversy rages over whether these patients should, in general, be managed with early surgical exploration and repair of the fracture, or whether expectant, nonsurgical management is the preferable approach.

### Literature Review

To formulate a reasonable therapeutic approach to patients with orbital floor blowout fractures, the clinician in analyzing the reported experience in the literature, must ask himself a number of questions.

**Table 1**  
**Fractures Involving the Orbital Floor\***

|     |                                                           |
|-----|-----------------------------------------------------------|
| 11% | Isolated orbital floor fractures<br>= "blowout fractures" |
| 8%  | Orbital floor + rim fractures                             |
| 46% | Trimalar fractures                                        |
| 35% | complex facial fractures                                  |

**Question No. 1:** *How many fractures involving the orbital floor are actually "blowout" fractures?*

Large reviews suggest that approximately 10% of all fractures involving the orbital floor are actually true "blowout" fractures (Table 1).<sup>6,7</sup> The clinician must be cautioned against comparing various surgical results where "blowout fracture" is used to describe more than what was originally intended by the term.

Two basic questions that are critical to the argument for early surgery are:

**Question No. 2:** *Does early surgery prevent the diplopia that would otherwise be permanent?*

**Question No. 3:** *Does early surgery prevent the late appearance of disfiguring enophthalmos?*

To answer these questions there are, however, few reports available with adequate follow-up.<sup>7,8</sup> The remainder are retrospective studies,<sup>6,9-11</sup> all of which have a number of shortcomings.

Von Noorden and Schlernitzauer<sup>8</sup> retrospectively studied 67 patients with long term follow-up. Eighteen patients were treated nonsurgically and 49 were treated surgically. Although a number of questions remain unanswered from this study, they were the first to document three critical points. 1) Surgery did not prevent the problem of late diplopia (49% of the surgical group) or enophthalmos (14% of the surgical group). 2) The incidence of these problems was virtually the same in the nonsurgical group (where diplopia did not resolve in 14 days) as in the surgical group. 3) The incidence of the problem of late diplopia was the same whether surgery was performed within the first week (41%) or the second week (37%) after injury.

The crux of the argument of surgical versus nonsurgical management lies in understanding the natural history of the condition. There is only one study available that addresses itself to this problem. Putterman et al<sup>12</sup> provided long term follow-up of 57 patients with orbital floor blowout fractures treated nonsurgically (28 retrospectively and 27 prospectively). Although "functionally significant" diplopia was very frequent in the early follow-up period (54% in the retrospective group, 41% in the prospective group), it was very infrequent after six months follow-up (4% in the retrospective group, 0% in the prospective group). No patient developed disfiguring enophthalmos and in fact, the incidence of "cosmetically significant" enophthalmos was 0% in both groups.

In many reports, patients are relegated to the nonsurgical category if their diplopia or motility resolves within two weeks after injury.<sup>6,7,10</sup> This patient group

**Table 2**  
**Reported Surgical Complications with "Blowout Fractures"**

|                                                                        |
|------------------------------------------------------------------------|
| Overcorrection of hypotropia (conversion of hypotropia to hypertropia) |
| Secondary limitation of downgaze                                       |
| Persistent diplopia                                                    |
| Enophthalmos or cosmetically unacceptable globe position               |
| Downward displacement of lower lid                                     |
| Secondary lower lid ectropion                                          |
| Tissue reaction to implant material                                    |
| Implant extrusion through surgical wound                               |
| Implant erosion into soft tissues                                      |
| Implant displacement into sinus                                        |
| (Early and late) postoperative infection                               |
| Secondary obstruction of lacrimal passages                             |
| (Early and late) orbital hemorrhage                                    |
| (Transient and permanent) visual loss                                  |

notwithstanding, the overall incidence of persistent diplopia (10%-25%) and enophthalmos (7%-15%) is identical whether patients are treated surgically or nonsurgically.<sup>6-12</sup>

Therefore, one can conclude the following; 1) in general, early surgery has not fulfilled its original intention, i.e., prevention of persistent diplopia and late appearance of enophthalmos, 2) despite 25 years of surgical experience, surgery has yet to be proven superior to nonsurgical management in the majority of patients, and 3) the mere presence of a blowout fracture with or without infraorbital nerve hypesthesia and diplopia, can not be taken on its own as an indication for early surgery.

**Question No. 4:** *Does early surgery avoid the technical problem of cicatrization that would otherwise be present if surgery was delayed?*

This is a question that the individual surgeon must ask himself. Certainly strong opinions have been offered either way.

Smith still contends that surgery is indicated after the "normal" waiting period, i.e., two weeks for spontaneous recovery.<sup>14</sup> This practice is echoed by many without question.<sup>5,6,10,11</sup> Knapp mentions a patient that had an excellent surgical result thirteen months after the injury, but in general believes that a wait of four weeks or more is appropriate.<sup>15</sup> Putterman<sup>12,16</sup> believes that later surgery, i.e., after six months has definite benefits, for the following reasons: 1) it allows more adequate evaluation of the degree of enophthalmos, 2) it permits much easier determination of the size of the implant required, and 3) delay permits the development of fibrous sheet as a "bed" for the support of the implant.

Although it may be true that in some patients surgical delay resulted in subsequent difficulties in the operative procedure, there is considerable variation in opinion as to its significance concerning patient outcome.<sup>15,17</sup> For the majority of patients, it has yet to be proven that surgery is mandatory prior to four weeks or even four months after injury.



**Question No. 5:** *Is the surgical procedure really "benign"?* There have been a large number of reported complications with surgical exploration and repair of blowout fractures, the most frequent of which are outlined in table 2. The surgical complication rate is reported to be 11%-13%<sup>8-10</sup> with 8%-9% requiring additional surgery.<sup>6,9,10</sup>

The complication of visual loss,<sup>18,19</sup> as the result of a surgical procedure which has yet to be proven to give results superior to the known natural history of the condition, does indeed seem a high price to pay.

In summary, early surgical repair for the majority of cases of orbital floor blowout fractures has not lived up to its original expectations of preventing persistent diplopia and enophthalmos, has not been proven essential in restoring single vision in a functional gaze position, and has not been proven to give results superior to conservative, nonsurgical management. The procedure itself is not benign and a number of potentially devastating complications have been reported.

#### **Problems in the Interpretation of the Clinical Findings**

There appears to be a number of problems with the present understanding of the clinical presentation as well as the interpretation of the clinical findings.

**Problem No. 1:** *If the theory of Smith and Regan<sup>4</sup> is correct, i.e., if "the extraocular muscle imbalance is due to entrapment of either the inferior rectus or the inferior oblique muscle or both,"<sup>5</sup> then 1) why does downward motility improve or recover before upward?<sup>12,15</sup> 2) why does the diplopia and motility improve with time?<sup>7,8,12,13,16,17</sup> 3) why, with typical clinical findings, is only an "eggshell" fracture without tissue incarceration,<sup>6,7</sup> or even no fracture<sup>10</sup> found during surgical exploration?*

Koorneef<sup>20</sup> has demonstrated that the orbital connective tissue has a definite structural organization between the orbital periosteum and rectus muscle sheaths. It is this unique system of fibrous connective tissue septa through the orbital fat that may become aut, either by periosteal entrapment in the fracture site and/or orbital hemorrhage, edema and inflammation.<sup>12,16</sup> This would result in secondary mechanical restriction of vertical eye movements without actual muscle entrapment. The resolution of the hemorrhage and edema would more readily explain the observed clinical improvement with time. Actual muscle incarceration may occur, but whether this is the case in the majority of clinical presentations is open to question. In fact, Putterman<sup>21</sup> believes that actual inferior rectus incarceration rarely, if ever occurs.

**Problem No. 2:** *What are the causes of diplopia in blowout fractures?*

Table 3 indicates the most likely early causes of diplopia.

Many proponents of early surgery state that a positive forced duction test is diagnostic of incarceration and is an indication for surgical exploration to "free" the entrapped tissue.<sup>6,10,11</sup> As can be seen in table 3, there are a number of causes of mechanical restriction of gaze in

**Table 3**  
**Most Common Causes of Diplopia in "Blowout" Fractures**

#### **Early**

Orbital floor hemorrhage, chemosis, inflammation  
Orbital periosteum & fat incarceration  
with or without IR-IO entrapment  
Contusion injury to nerve and/or muscles  
Combination of above

#### **Late**

Secondary cicatricial changes in orbital fat and/or muscles  
Orbital periosteum and fat incarceration  
with or without IR-IO entrapment  
Neurogenic paralysis of IR  
Combination of above

the early period after injury, of which tissue incarceration is only one cause.

A positive forced duction test only indicates that a mechanical restriction is present. When present in the first weeks after injury, it does not guarantee that incarceration is present, and hence, can not be realistically used as a separate "surgical indication."

Table 3 also indicates that there are a number of late causes of diplopia. Again, positive forced ductions in this period do not guarantee that tissue incarceration is definitely present, and are just as likely to be due to post-traumatic fibrosis and loss of extraocular muscle elasticity.

**Table 4**  
**Etiology of Enophthalmos in Orbital "Blowout" Fractures**

Orbital fat/tissue prolapse into maxillary sinus  
Posttraumatic orbital enlargement  
Posttraumatic/Postinflammatory orbital fat atrophy  
Combinations of above

**Problem No. 3:** *What are the causes of enophthalmos in orbital floor blowout fractures?*

Table 4 indicates the most likely causes of enophthalmos.

It is obvious that early surgical reduction of the fracture with or without orbital implant, can not guarantee that late enophthalmos will not appear.

**Problem No. 4:** *Are there justifiable indications for early surgical exploration and repair of orbital floor blowout fractures?*

Yes, I believe there are, but only in the minority of cases.

As previously outlined, the validity of the commonly mentioned criteria for surgery (presence of a fracture, hypesthesia, diplopia and restricted motility that do not improve in two weeks, [+] forced ductions) is doubtful. These criteria have not been subjected to controlled, prospective study.

In less than 5% of cases, enophthalmos is demonstrated upon presentation or within the first 7-10

days after injury.<sup>6,7</sup> Here there may be ample justification for early surgery.

Many clinicians would agree that if the defect in the orbital floor is "extensive", i.e., one-half or more of the floor involved, then early surgery is justified.<sup>7,8,10</sup> The rationale here is that enophthalmos is more likely to evolve where the defect is large. Although this would appear to be logical, the clinician should be cautioned that this association, i.e., larger fracture means greater incidence of late appearing enophthalmos, has not at all been proven with certainty.<sup>21</sup>

There is the suggestion from retrospective study<sup>6,7</sup> that comminuted floor fractures are particularly prone to late complications, although early surgery does not appear to significantly reduce this risk.<sup>7</sup>

As indicated in table 1, the majority of floor fractures are in association with trimalar or complex facial fractures. These, I believe, are no longer in the realm of the ophthalmologist and should be referred. The surgical indications for these complicated problems are beyond the scope of this review.

**Table 5**  
**Recommended Therapy for Orbital**  
**Floor "Blowout" Fractures**

**Initial Period**

Assess presence/absence of associated ocular injuries  
Document visual acuity (best corrected)  
Document motility defect & diplopia field  
Forced duction testing  
Exophthalmometry  
Radiological confirmation of defect  
Antibiotics

**Recommended Therapy for Orbital Floor "Blowout" Fractures**

A clinical approach during the initial period is outlined in table 5. A few comments are in order.

a) Documentation of best corrected visual acuity is critical for obvious reasons. A detailed ophthalmological assessment is essential for all orbital floor fractures, for experience would indicate that over 30% of these patients have associated ocular injuries<sup>7,8</sup> which may dictate the subsequent approach to the patient.

b) X-ray confirmation is required to document the presence and the size of the defect, plus rule out associated facial fracture. Plain skull films and polytomography remain the essential studies. Newer generation CT scans may play a greater role in the future.

c) Baseline motility examination includes assessment of ductions and versions, preferably documented by external photography. If possible, prism cover testing in the cardinal gaze positions should be done. Plotting of diplopia fields is a very useful adjunct that permits evaluation of the patient's functional status. Forced duction testing is indicated at this time but the clinician's eagerness to know the degree of mechanical restriction

**Table 6**  
**Recommended Therapy for Orbital**  
**Floor "Blowout" Fractures**

**Follow-Up Period**

Serial documentation of motility defect and diplopia fields  
Serial forced duction testing  
??? eye movement "exercises"  
Occlusion management

present may have to be tempered in certain patients particularly in children.

d) The healing time for orbital blowout fractures is approximately two to three weeks. During this period, prescribe a broad spectrum, oral antibiotic, although am unaware of reported cases of infection during this period.

A clinical approach during the follow-up period is outlined in table 6. A few additional comments are in order.

a) Serial documentation of ductions and versions is essential. Serial diplopia fields may be one of the best methods of documenting the patient's functional improvement when, despite the patient's reassurances to the contrary, the examiner cannot detect any significant objective improvement.

b) Serial forced ductions, subjectively graded by the individual examiner, may assist in estimating the degree of restriction present. Rarely will the forced duction test be therapeutic with a sudden "give" and apparent improvement in the patient's ocular motility. Forced generation testing done at the same time (along with observation of downgaze saccades) will give an indication of the status of the inferior rectus muscle. The value of saccadic velocities, in ruling out neurogenic paralysis of the inferior rectus, has been previously stressed.<sup>13</sup> I do not believe, however, that the clinician requires the sophisticated equipment necessary for formal saccadic velocity studies.

c) Occasionally the patient is eager to actively participate in his care. Here one can consider daily sursumduction eye "exercises." I am not convinced of their overall usefulness, but in theory they may be prophylactic against secondary contracture. The psychological advantage to the patient is probably more important.

d) Most patients will cope with their motility problem without major difficulty. However, some are handicapped to some extent in their daily activities. A piece of scotch tape on their spectacle glass may be all that is required to eliminate diplopia in a particular field of gaze. Less frequently, monocular occlusion is required. If at all possible, the occlusion should be done on alternate days, i.e., O.D. one day, O.S. the next. This is of vital importance when occluding children where sensory adaptations may evolve, i.e., occlusion amblyopia.

e) The follow-up visit schedule can be varied for each



**Table 7**  
**Recommended Therapy for Orbital**  
**Floor "Blowout" Fractures**

---

|                                                        |
|--------------------------------------------------------|
| 4-6 months after injury                                |
| If Diplopia in upgaze only - No Treatment              |
| If Diplopia in a Functional Gaze Position              |
| - mechanical restriction - IR recession                |
| - neurogenic paralysis - tendon-transfer procedure     |
| If Enophthalmos cosmetically acceptable - No Treatment |
| If Blepharoptosis is major problem                     |
| - Fasanella-Servat procedure                           |
| If Asymmetry of Upper Lid Folds is major problem       |
| - cosmetic surgery of contralateral upper lid          |
| If significant enophthalmos - consider orbital implant |

---

patient. A reasonable schedule would be every week for the first six weeks, then monthly after that.

A clinical approach after sufficient follow-up period is indicated in table 7. A few additional comments are in order.

a) As a generalization, no therapy is recommended within the first four to six months, other than that already outlined. As previously indicated, in only a few selected cases is orbital surgery before two weeks warranted. Rarely, patients will fail to demonstrate any improvement whatever in the first two to three weeks. In this select group, consideration should be given for orbital surgery prior to the end of the fourth week.

The great majority will progressively improve over the first four to twelve weeks and then "plateau" on serial follow-up. These patients may be considered for definitive treatment if their condition can be demonstrated to be static over a six to eight week period. Occasionally patients will slowly and progressively improve with time. Here the clinician is justified in waiting a year or more, as long as continued improvement is forthcoming.

b) The strabismus surgeon actually plays only a small role in the care of these patients. In the best documented series, the incidence of diplopia in a functional gaze position is less than 5%.<sup>7,12</sup> Although the surgeon's task is difficult, as in all cases of restrictive strabismus, it is not impossible. The surgeon must have a working knowledge of the strabismus techniques of ample dissection and lysis of adhesions, adjustable sutures, traction sutures, posterior fixation sutures and tendon transfer procedures.

The surgical goal is the restoration of single vision in a functional gaze position, i.e., primary position and 15° into downgaze, 10-15° into upgaze.

If the patient's diplopia is outside this region, then no surgery is indicated. Otherwise the patient runs the risk of losing the range of single vision already enjoyed.

c) If there are positive forced ductions with the eye in a hypotropic position (with or without single vision in downgaze), the surgical first step is a generous inferior rectus recession. After an adequate follow-up period, vertical strabismus surgery on the normal, fellow eye

can be considered to "fine tune" the surgical result. Prisms are a consideration with more comitant deviations.

d) If the diplopia is apparently due to inferior rectus paresis (clinically: decreased downgaze saccadic velocity, abnormal force generation test, negative forced ductions), then a tendon transfer procedure of the horizontal recti is the first step.

e) The clinician should recall that rectus muscle resections and tendon transfer procedures are contraindicated when there is evidence that the strabismus to be corrected is due to mechanical restriction. In addition, the motility disturbance need not be associated with significant enophthalmos, just as enophthalmos may not be associated with diplopia.

f) If the enophthalmos is of no cosmetic significance to the patient, then no treatment is required.

g) Patients with significant enophthalmos will rarely complain that their eye is "sunken" into their orbit. Most frequently they note that the involved eye appears "smaller" than its fellow. The reason is the blepharoptosis secondary to the enophthalmos. If the ptosis can be corrected, most patients no longer identify a problem. Putterman<sup>10</sup> has outlined a very useful approach to these patients. Using 10% phenylephrine drops, the observed improvement in the upper lid position is a good indicator of the result from a Fasanella-Servat procedure. If the patient, upon viewing himself in a mirror, is pleased with the resultant appearance, then the surgeon may proceed.

Occasionally patients note a deepened supratarsal sulcus in the involved upper lid. Here "symmetrizing" cosmetic surgery on the contralateral (normal) lid may be all that is required.<sup>10</sup>

In those rare instances where the enophthalmos is significant and the forementioned therapeutic approaches are inappropriate, then consideration may be given to orbital implant surgery. In this instance, a "forward traction test" may be useful preoperatively. If the globe can be pulled forward to a "normal" position, this would suggest a good prognosis with respect to the postoperative result. If the globe is "frozen" in the enophthalmic position, this would suggest cicatricial retro-ocular fibrosis and hence a poor prognosis.

In any event, if implant surgery is proposed, the clinician should be aware that no guarantee can be given to the patient with respect to the postoperative range of single vision. Strabismus surgery may still be required. Most importantly, if implant surgery is contemplated, do it before the strabismus surgery. This obvious point is occasionally overlooked with some embarrassing consequences. A waiting period of four to six months is necessary before proceeding to strabismus surgery.

### Summary

After 25 years of surgical experience in managing orbital floor blowout fractures, it is evident that early surgery has failed to fulfill its original expectations of prevention of persistent diplopia and late appearing

enophthalmos. In only specific instances in a minority of patients is early surgery indicated. With a proper understanding of the natural history and with proper interpretation of the clinical findings, the clinician may have the confidence to follow the majority of these patients expectantly. The nonophthalmological physician need not be apprehensive of double vision that persists longer than a week or two after injury. After a sufficient follow-up period, the patient's surgical candidacy can be reviewed.

No doubt the management of orbital floor blowout fractures will remain a controversial topic until the surgical indications have been subjected to well controlled, prospective study.

#### References

1. MacKenzie W: *Traite Pratique des Maladies des Yeux*, *Trad. L'urgiet et Richelot*, Paris, pg vii, 1844.
2. Lang W: Traumatic enophthalmos with retention of perfect acuity of vision. *Trans. Ophthal Soc U K* 9:43, 1889.
3. Pfeiffer RL: Traumatic enophthalmos. *Arch Ophthal* 30:718, 1943.
4. Smith B, Regan WF: Blow-out fracture of the orbit. *Am Ophthalmol* 44:733, 1957.
5. Lerman S: Blowout fracture of the orbit. *Br J Ophthalmol* 54:90, 1970.
6. Crumley RL, Leibsohn CJ, Burton K, Burton TC: Fractures of the orbital floor. *Laryngoscope* 87:934, 1977.
7. Liebsohn J, Burton TC, Scott WE: Orbital floor fractures: A retrospective study. *Ann Ophthal* 8:1057, 1976.
8. von Noorden GK, Schlernitzauer DA: Orbital floor fractures: Long-term follow-up of cases with and without surgical repair. *Trans Am Acad Ophthal* 75:802, 1971.
9. Goldman RJ, Hessberg PC: Appraisal of surgical correction in 130 cases of orbital floor fractures. *Am J Ophthalmol* 76:152, 1973.
10. Greenwald HS, Kenney AH, Shannon GM: A review of 128 patients with orbital fractures. *Am J Ophthalmol* 78:655, 1974.
11. Sachs AC, Friendland JA: Orbital floor fractures - should they be explored early. *Plast Reconstr Surg* 64:190, 1979.
12. Putterman AM, Stevens T, Urist MJ: Nonsurgical management of blowout fractures of the orbital floor. *Am J Ophthalmol* 77:232, 1974.
13. Metz HS, Scott AB: Saccadic velocity and active force studies in blowout fractures of the orbit. *Am J Ophthalmol* 78:665, 1974.
14. Smith B, Nesi FA: Orbital fractures and medial canthal reconstruction. *Clin Plast Surg* 5:505, 1978.
15. Knapp P: Blowout fractures. *Strabismus Symposium of the New Orleans Academy of Ophthalmology*. The C.V. Mosby Company, St. Louis, pp 285-291, 1978.
16. Putterman AM: Late management of the orbital floor. *Trans Am Acad Ophthal* 83:650, 1977.
17. Fontaine M, Rousselie F, Luca F, Dubuisson C: Le Devenir Des Troubles Oculomoteurs Dans Les Fractures Du Plancher De L'Orbite. *Bull Med Soc Fr Ophthal* 89:57, 1977.
18. Nicholson DH, Guzak SV: Visual loss complicating repair of orbital floor fractures. *Arch Ophthal* 89:369, 1971.
19. Emery JM, Huff JB, Justice J: CRA occlusion after blowout fracture repair. *Am J Ophthalmol* 78:538, 1974.
20. Koorneef L: New insights in the human orbital connective tissue. *Arch Ophthal* 95:1269, 1977.
21. Putterman AM: Nonsurgical management of blowout fractures of the orbital floor. *Controversy in Ophthalmology* W. B. Saunders Co, pp 406-413, 1977.



## State of the Art

### New Vaccines on the Horizon

James I. Ito, Jr., M.D.

Vaccines have been among modern medicine's greatest accomplishments and have become a part of everyone's life in the developed world. Many have been extremely successful in controlling diseases such as diphtheria, pertussis, tetanus, and poliomyelitis and one smallpox vaccine, so successful that it has resulted in the eradication of the disease from the face of the earth. And there are many other infectious diseases for which a vaccine may still be the only way to prevent morbidity and mortality. There are presently many candidate vaccines in various stages of development. For which diseases are these new vaccines being developed? How do or will they work? How effective are these vaccines? Are there any risks to these vaccines? To whom will they be administered? When will they be available for general use? These are a few of the questions that we will attempt to answer in briefly examining three of these new vaccines in various stages of testing: 1) hepatitis B vaccine, 2) gonococcal pili vaccine and 3) gram-negative bacterial vaccine.

#### Hepatitis B Vaccine

Hepatitis B virus (HBV) infection is a serious problem in the United States and world-wide. Although more than 15,000 cases of acute hepatitis due to HBV were reported to the Center for Disease Control in 1979, this figure is thought to underestimate the true incidence up

From: University of Arizona Health Sciences Center, Tucson Arizona 85724.



ten-fold. Acute hepatitis can result in death in that rare fulminant case, but more commonly patients can develop chronic active hepatitis, cirrhosis, or become chronic carriers of the hepatitis B surface antigen (HBsAg). There is now strong evidence that links the chronic HBsAg-carrier state with later development of hepatocellular carcinoma. In parts of Africa and Asia, areas of high endemicity, up to 90% of the population has experienced previous infection. The prevalence of HBsAg carriers can be as high as 15%. It is estimated that 100 million persons world-wide have chronic HBV infections.

It is remarkable that a vaccine is now undergoing human trials whose marker, the HBsAg (Australia antigen), was discovered as recently as 1964.<sup>1</sup> One of the major obstacles to a hepatitis B vaccine has been the failure to cultivate the virus *in vitro*, e.g., in tissue culture. Thus efforts turned to harvesting the antigenic components needed from the plasma of human carriers. That such might be possible was first suggested in 1970 by Krugman and associates.<sup>2</sup> Krugman's vaccine consisted of diluted (1:10) plasma from a single carrier heated to 98°C for one minute. It was administered intramuscularly, did not transmit infection, and protected 70% of children against subsequent challenge with infectious virus.

Subsequent attempts at vaccine development have been based on purification of HBV antigens. The HBV is a double shelled virus 42 nm in diameter which is found in diverse morphologic forms:<sup>3</sup> spherical particles, 22 nm in diameter, tubular forms, and the 42 nm HBV particle. The HBsAg is associated with all viral forms but the spherical and tubular forms are not infectious. It is the antibody response against the HBsAg that is associated with long term immunity. Thus, vaccine development has been aimed at purification of the immunogenic but non-infectious 22 nm spherical form of the HBV obtained from human plasma. This is done by selective centrifugation of HBsAg-positive plasma for separation of the 22 nm forms and inactivation of possibly infectious particles with formalin. Aluminum hydroxide is added as adjuvant.

Before this or any vaccine can be licensed for use it must undergo testing for immunogenicity, safety and efficacy. The Merck vaccine has been shown to be immunogenic, safe and effective in chimpanzees, the only animal, besides man, susceptible to HBV infection. Immunogenicity testing in humans has demonstrated a 95% seroconversion rate after two doses, 40 µg one month apart, and 100% conversion rate after a second booster dose at six months. The vaccine was shown to be safe with few and minor side effects, usually just local induration, resulting in no documented HBV infections.

The vaccine was now ready for efficacy trials in humans. There were many types of groups and conditions under which one could test a vaccine: pre-exposure prophylaxis in health personnel, dialysis patients, institutionalized patients, drug addicts, male

homosexuals, sexual contacts of acute HBV cases, infants and children in endemic areas. But there was also the possibility that the vaccine could also be tested under post-exposure conditions such as percutaneous exposure or newborns of HBsAg positive mothers. Since the HBV has a long incubation period, like the rabies virus, the vaccine could theoretically be given after percutaneous exposure with or without hepatitis B immune globulin (HBIG).

The first randomized, double-blind, placebo-controlled trial of the hepatitis B vaccine has been completed and recently reported by Szmumess and associates.<sup>4</sup> The "high-risk" population chosen for this trial of pre-exposure vaccination was the male homosexual community in New York City. There were over 1000 men participating and compliance was excellent. A number of important observations were made: 1) the vaccine was safe, with sore arms (16%) and low-grade fever (3%) being the predominant side-effect, and there was no evidence of vaccine viral transmission; 2) the vaccine was shown to be immunogenic again with 31% seroconverting at one month, 77% at two months, (one month after first booster), and 96% after the second booster at six months; 3) the vaccine was effective because none of the subjects who received all three immunizations, and developed an antibody response (anti-HBsAg), developed clinical hepatitis B or acquired circulating HBsAg! The reduction in the incidence of clinical hepatitis B in vaccinees was 92%, a 13-fold difference in attack rates between vaccine and placebo groups. The vaccine also reduced antigenemia by 88%.

Another important observation from this study was that the vaccine's efficacy was evident within the first ten weeks. This, along with earlier chimpanzee post-exposure prophylaxis studies, suggests that the vaccine may be of some use in this post-exposure situation. And, finally, this study strongly implies that the presence of anti-HBsAg is synonymous with protection as those four percent of vaccinees who did not develop anti-HBsAg after vaccination were just as susceptible to infection as those given placebo.

Studies are in progress or planned to answer some remaining questions: 1) What is the duration of protection? 2) Will this vaccine, composed of one HBV subtype, confer protection against other subtypes? 3) Will hemodialysis and immunosuppressed patients respond to the vaccine? 4) Will the vaccine be effective in the post-exposure situation? 5) Will infants respond to the vaccine and can the vaccine interrupt the chain of vertical transmission?

Although the Szmumess study implies that protection may be conferred within ten weeks after vaccination, the relatively slow serologic response of some vaccinees is worrisome. It is possible that HBIG may have to be administered with hepatitis B vaccine. That HBIG will not interfere with the immunogenicity of the vaccine has already been demonstrated.<sup>5</sup>

There is also some evidence that hepatitis B vaccine is



immunogenic in an important high risk group, hemodialysis patients.<sup>6</sup> Eighty-nine percent of patients in a New York hemodialysis center developed anti-HBsAg after two or three vaccinations followed by a booster given at six months. Although the seroconversion rate is slightly lower than that seen in normal adults, it implies that this group can be significantly protected.

There is also evidence that a hepatitis B vaccine developed in France is immunogenic, safe, and can reduce the incidence of the HBsAg carrier state by 85% in young children in an edemic area (Senegal).<sup>7</sup>

### **Gonococcal Vaccine**

Gonorrhea is the most commonly reported communicable disease in the United States. Approximately one million cases were reported to the Center for Disease Control in 1979. Since not all diagnosed cases are reported, it is estimated that the true number of cases is actually two to three times higher. The major cost and morbidity of this disease is due to one gonococcal syndrome: pelvic inflammatory disease (PID). It is estimated that 20% of women with gonorrhea will end up with one or more episodes of PID. This syndrome accounts for over 212,000 hospital admissions, 2.5 million physician visits, and 115,000 surgical procedures. The economic cost is estimated to be over 1.25 billion dollars annually.<sup>8</sup> The cost to the patient is recurrent salpingitis, infertility, and ectopic pregnancy. The latter is estimated to occur in 20% of patients with a history of PID and results in approximately 50,000 fetal deaths annually.

Gonococcal infection has thus far been difficult to control because of its rapid spread from host to host and the reservoir in asymptomatic women, (estimated at 50%-80% of those infected) and men estimated at 10%, who do not seek medical attention. Recommended doses of antibiotics are usually effective with a small failure rate of approximately five percent. Although strains bearing a plasmid-coded penicillinase account for a significant proportion of strains encountered in some parts of the world, e.g., 40% in the Philippines, this has not yet been a major problem in the U.S. There is recent indication, however, that these penicillin-resistant strains are becoming more prevalent in certain urban areas.

Efforts to attenuate this gonococcal "epidemic" have centered on attempts to prevent the disease. Screening and contact tracing programs have probably been responsible for halting the rise of this disease during the late 1970s. Although there exists a very effective method of prophylaxis, the condom, it has not been utilized. This is due to lack of education concerning its efficacy and to low compliance.

It is now felt that control of this disease will require the development of an effective vaccine. However, there have been major obstacles in this endeavor. There has been a lack of knowledge of the pathogenesis of gonococcal infection: how the organism establishes

itself on the mucosal surface, how it invades, and the virulence factors responsible for disease. Significant immunity is not established after infection. The local and systemic immunologic responses seem to be slight of short duration and cannot prevent reinfection. There also appears to be an unlimited number of strains or serotypes that may partially account for recurrent reinfection. Finally, there are no realistic animal models that simulate all aspects of this disease in which to study pathogenesis or test a potential vaccine.

Studies have centered on examining the various structural components of the gonococcus: pili, outer membrane proteins, lipopolysaccharides (LPS), and capsule. The gonococcus appears to have a capsule but it has not yet been isolated or characterized. The LPS may be the toxin that causes damage to the fallopian tubes. The major outer membrane may be associated with virulence as demonstrated by blood stream invasion. But the structure that has received the most attention and forms the basis for current vaccine development is the hair-like appendage, the pilus. It is this structure that extends out from the outer membrane and is felt to mediate adherence of the organism to the mucosal epithelial cell in the human host, the first necessary step in colonization and infection. Early studies in human volunteers by Kellogg, et al.<sup>9</sup> demonstrated that infection could only be established with certain colony types that were later found to possess pili. It was also observed that clinical isolates from patients were of these same colony types, i.e., piliated strains. It was also subsequently demonstrated that piliated colony type would adhere much more avidly to various human cell types (red blood cells, buccal epithelial cells, fallopian tube epithelial cells, vaginal epithelial cells, sperm) than non-piliated types. Moreover, antiserum to partially purified pili could inhibit the epithelial cell adherence. Finally, there is a suggestion that pili are also antiphagocytic.

As there appeared to be good evidence that pili were the structures that mediated initial attachment of gonococci to human epithelial cells and that antibodies against them could inhibit this attachment, human testing of vaccines composed of purified pili were begun by two groups: Brinton and colleagues in Pittsburgh and Buchanan and associates in Seattle. At the present time testing is underway at three centers: University of Washington, University of Pittsburgh, and the Walter Reed Army Medical Center.

Preliminary testing has shown that the vaccine is relatively safe. The major side effects appear to be local tenderness and swelling. The pili protein vaccine consisting of purified pili from only one pili type, also appears to be immunogenic. Levels of between 10-6  $\mu\text{g/ml}$  of specific anti-pili antibody appear in the serum of vaccinated volunteers.<sup>10</sup> In a small preliminary study of human volunteers at the University of Pittsburgh there is some indication that this vaccine might be effective.<sup>11</sup> Of 21 non-immunized men who were



inoculated intraurethrally with  $10^4$  bacteria, 16 (76%) became infected. Of 11 immunized men given the same challenge, 4 (36%) became infected.

These numbers are too small to be meaningful, but there are more important questions to be answered before such a vaccine could be considered for a wider use. Do anti-pili antibodies generated by a parenteral vaccine reach the local mucosal surface where they are needed? There is some indication that they do to some degree.<sup>12</sup> The question is whether it will be in sufficient quantity to inhibit attachment. But the larger question is whether a vaccine made from one pili type can protect against an infection with a different pili type. There is considerable heterogeneity among gonococcal pili and there are probably more than fifty pili types. It is estimated that there is 10% shared antigenicity among these types<sup>13</sup> and there is some *in vitro* evidence that there is some functional cross-reactivity.<sup>14</sup> But whether a monovalent vaccine will protect against heterologous infection or whether a safe and effective polyvalent vaccine can be produced remains to be seen. Another approach might be to identify the shared pili antigen, isolate it, and determine whether it would be protective as a vaccine. Thus, an operational gonococcal vaccine is still a few years away. And the important questions of who should receive such a vaccine will have to be determined.

### Immunization Against Gram-negative Bacteremia

Infections due to gram-negative bacilli have become increasingly frequent over the past two decades among hospitalized, and especially immunosuppressed, patients. Gram-negative bacteremia can be a devastating disease with intravascular coagulation and shock among its most serious complications, resulting in a mortality rate of 30%-60% despite antibiotic treatment. This failure of antimicrobials is in part due to the antibiotic resistance of many of these organisms and to the decreased state of resistance of the immunocompromised host, but it is also due to the fact that even though bacteria are killed the endotoxin released may still exert its effect on the hematologic and vascular systems.

The failure of antibiotics and the toxic properties of gram-negative endotoxin raised the concept of antiserum to counteract these effects. But two basic questions had to be answered. Would immunization with endotoxin (lipopolysaccharide, LPS) or an LPS-bearing antigen raise antibody that could neutralize the toxic effects of LPS and/or enhance killing or clearance of bacteria from the blood stream? As there is a great deal of heterogeneity among the LPS of the different species and serotypes of pathogenic gram-negative bacilli, how would one elicit broad spectrum protection by vaccinating with one LPS-type?

The first question was answered in part by Abernathy and Spink<sup>15</sup> using a *Brucella* model and demonstrating that human convalescent serum could neutralize LPS. Freedman<sup>16</sup> demonstrated the passive transfer of

protection against LPS lethality. But Braude and associates<sup>17-19</sup> showed that passive antibody could protect against the specific toxic effects of LPS: 1) the local Shwartzman reaction, 2) intravascular coagulation (generalized Shwartzman reaction), and 3) death.

The solution to the second problem, of how to overcome the vast heterogeneity of various gram-negative species, was suggested by the elegant work of bacterial biochemists in the 1960s.<sup>20,21</sup> These workers demonstrated that LPS or endotoxin was composed of two parts: the "O" side chains which conferred species and serotype specificity and the toxic glycolipid "core" region. It was this "core" region that appeared to be similar in all species. In fact there existed R or "rough" mutants of gram-negative species that were lacking "O" side chains and consisted mainly of core glycolipid. It was this common structure and these mutants upon which the development of a gram-negative vaccine was based.

Two groups, one led by Braude in San Diego and the other led by McCabe in Boston, began working with two different rough mutants: Braude with the Rc mutant of *E. coli* O:111 called J5 and McCabe with the Re mutant 595 of *Salmonella minnesota*. Both groups demonstrated that passive antibody against core glycolipid could protect animals against lethal bacteremia challenge. Braude specifically demonstrated that this antibody could prevent, again, the local Shwartzman reaction, and disseminated intravascular coagulation. One of the important features of Braude's work was that his animal model consisted of a neutropenic rabbit (induced with nitrogen mustard) in which lethal bacteremia arises from the bowel, previously colonized by organisms introduced in the drinking water.<sup>22</sup> This model was reminiscent of the neutropenic patient who appears at high risk for gram-negative bacteremia and its sequelae. Antiserum to core glycolipid (J5) given either before or after onset of bacteremia provided significant protection against heterologous species of gram-negative bacteria even in the absence of supportive care or antibiotics. In studies by Braude and McCabe broad protection was demonstrated against *E. coli*, *Klebsiella pneumoniae*, *Enterobacter aerogenes*, and *Pseudomonas aeruginosa*, the major organisms causing gram-negative bacteremia. The protective effect of antiserum to core glycolipid has been attributed to its antitoxic and opsonic effects. In the absence of polymorphonuclear leukocytes (PMN) opsonization would still promote phagocytosis by the reticuloendothelial system (RES). Even in the presence of PMN the RES is largely responsible for removing gram-negative bacilli from the blood.

The next step was to see if this antiserum would protect humans. J5 vaccine was first administered to healthy young men in the San Diego area and side-effects were noted to be minimal, consisting mainly of local tenderness and low-grade fever.<sup>23</sup> The immune serum obtained was tested in an experimental model of *Pseudomonas* bacteremia and demonstrated significant protection. The antiserum appeared ready for trials in



human gram-negative bacteremia. Human experimentation was encouraged by the observation of McCabe; that high titers of antibody to core glycolipid (R595), but not to "O" antigens, were associated with less frequent shock and death in human gram-negative bacteremia.<sup>24</sup>

In 1976, a controlled, randomized, double-blind study of J5 antiserum vs normal human serum was begun in San Diego. The results have just been revealed.<sup>25</sup> Near the onset of what was suspected of being gram-negative bacteremia, a patient was given 3 ml/kgm of either J5 antiserum or preimmune (normal) control serum. Three hundred and four patients were enrolled in the study and in 212 (70%) a diagnosis of gram-negative bacteremia was made. The death rate from gram-negative bacteremia was lowered from 39% (42/109) in the control group to 22% (23/103) in those given antiserum. Of those in profound septic shock, 56% (22/39) of the J5 group recovered from shock in contrast to 29% (11/38) among the controls. Both of these figures are significant. It appears that antiserum to core glycolipid should be considered as part of the standard treatment for gram-negative bacteremia and/shock.

Further studies are now underway to determine whether passive antiserum given prophylactically can decrease the morbidity and mortality in certain high risk patient populations, e.g., burn and neutropenic patients. Finally, the most effective way to protect these patients might be to vaccinate them with J5 vaccine prior to or early in their course of immunosuppression. For example, one could vaccinate the leukemic patient prior to chemotherapy induction.

We have discussed only three of the newer vaccines that are presently undergoing human clinical trials. One, Hepatitis B vaccine, appears to be close to being released for general use while another, gonococcal pili vaccine, has yet to prove itself in trials. But there are many other vaccines which were not discussed that are actively under study. These include *Hemophilus influenzae*, type b (polysaccharide) vaccine, Influenza A and B subunit vaccine, attenuated varicella vaccine, attenuated cytomegalovirus vaccine, *E. coli* pili and colonizing factor vaccines, Group B Streptococcus cell wall-polysaccharide vaccine, Toxoplasma vaccine and vaccines against parasites like Malaria, Schistosoma, Trypanosoma and Leishmania.

A few of these will soon be ready for clinical trials, but those, like the parasitic vaccines that have the potential of preventing diseases that afflict hundreds of millions in the third world, are just in the earliest stages of development and are many years from such trials.

#### References

1. Blumberg BS: Polymorphisms of the serum proteins and the development of iso-precipitins in transfused patients. *Bull N Y Acad Med* 40:377-386, 1964.
2. Krugman S, Giles JP, Hammond J: Hepatitis virus: Effect of heat on the infectivity and antigenicity of MS1 and MS2 strains. *J Infect Dis* 122:432, 1970.
3. Maynard J: Hepatitis B vaccine: Current progress and strategies for utilization. In: *New Developments with Human and Veterinary Vaccines* Mizrahi A, Hertman I, Klingberg MA, Kohn A, (eds), Al Liss, Inc., New York, pp. 157-168, 1980.
4. Szmunes W, Stevens CE, Harley EJ, et al: Hepatitis B. Vaccine Demonstration of efficacy in a controlled clinical trial in a high risk population in the United States. *N Engl J Med* 303:833-841 1980.
5. Szmunes W, Stevens CE, Oleszko WR et al: Passive-active immunization against hepatitis B: Immunogenicity studies in adult Americans. *Lancet* 1:575-577, 1980.
6. Stevens CE, Szmunes W, Goodman AI, et al: Hepatitis B Vaccine: Immune responses in hemodialysis patients. *Lancet* 2:1211-1213, 1980.
7. Maupas P, Chiron JP, Barin F, et al: Efficacy of hepatitis B vaccine in prevention of early HBsAg carrier state in children—controlled trial in an endemic area (Senegal). *Lancet* 1:291-292, 1980.
8. Curran JW: Economic consequences of pelvic inflammatory disease in the United States. *Am J Obstet Gynecol* 138:848-851 1980.
9. Kellogg DS, Peacock Jr WL, Deacon WE, et al: *Neisseria gonorrhoeae* I. Virulence genetically linked to clonal variation. *J Bacteriol* 85:1274-1279, 1963.
10. Tramont E, Boslego J, Sadoff J et al: Safety and antigenicity study of a gonococcal pili vaccine. In: *Current Chemotherapy and Infectious Disease*, Nelson JD, Grassi C, (eds), Amer Soc. Microbiol. Washington, DC, pp 1239-40, 1980.
11. Brinton C, Brown A, Rogers K, et al: Preparation, testing, safety, antigenicity, immunogenicity, and serological specificity of purified gonococcal pili vaccine for gonorrhea. In: *Current Chemotherapy and Infectious Disease*, Nelson JD, Grassi C (eds), pp 1242-45, 1980.
12. Tramont EC, McChesney D, Boslego J, et al: Induction of local genital IgA antibody by a parenteral gonococcal vaccine. *Clin Res* 29:397a, 1981.
13. Buchanan TM: Antigen-specific serotyping of *Neisseria gonorrhoeae* I. use of an enzyme-linked immunosorbent assay to quantitate pili antigens on gonococci. *J Infect Dis* 138:319-325 1979.
14. Tramont E, Ciak J, McChesney D et al: Cross-reactivity of gonococcal pili as determined by inhibition of epithelial cell attachment. In: *Current Chemotherapy and Infectious Disease*, Nelson JD, Grassi C, (eds), Amer Soc Microbiol, Washington, D.C., pp 1239-40, 1980.
15. Abernathy RS, Spink WW: Studies with *Brucella* endotoxin in humans: The significance of susceptibility to endotoxin in the pathogenesis of brucellosis. *J Clin Invest* 37:219, 1958.
16. Freedman HH: Passive transfer of protection against lethality of homologous and heterologous endotoxins. *Proc Soc Exp Biol Med* 102:504-506, 1959.
17. Tate, III WJ, Douglas H, Braude AI: Protection against lethality of *E. coli* endotoxin with "O" antiserum. *Ann N Y Acad Sci* 133:746-762, 1966.
18. Braude AI, Douglas H: Passive immunization against the local Schwartzman reaction. *J Immunol* 108:505-512, 1972.
19. Braude AI, Douglas H, Davis CE: Treatment and prevention of intravascular coagulation with antiserum to endotoxin. *J Infect Dis* 128 (Suppl.):S157-S164, 1973.
20. Heath EC, Mayer RM, Edstrom RD, et al: Structure and biosynthesis of the cell wall lipopolysaccharide of *Escherichia coli*. *Ann NY Acad Sci* 133:315-333, 1966.
21. Luderitz O, Staub AM, Westphal O: Immunochemistry of O and R antigens of Salmonella and related enterobacteriaceae. *Bacteriol Rev* 30:192-255, 1966.
22. Ziegler EJ, Douglas H, Sherman JE, et al: Treatment of *E. coli* and klebsiella bacteremia in agranulocytic animals with antiserum to a UDP-Gal epimerase-deficient mutant. *J Immunol* 111:433-438 1973.
23. Ziegler EJ, McCutchan JA, Douglas H: Prevention of lethal pseudomonas bacteremia with epimerase-deficient *E. coli* antiserum. *Trans Assoc Am Physicians* 88:101-108, 1975.
24. McCabe WR, Type-specific and cross-reactive antibodies in gram-negative bacteremia. *N Engl J Med* 287:261, 1972.
25. Ziegler EJ, McCutchan JA, Braude AI: Successful treatment of human gram-negative bacteremia with antiserum against endotoxin core. *Clin Res* 29:576A, 1981.



## University of Arizona College of Medicine Admissions Procedure

**President****Clyde W. Kurtz, M.D.****President-Elect****John E. Oakley, M.D.****Vice President****Neopito L. Robles, M.D.****Secretary****Earl J. Baker, M.D.****Treasurer****Clifford D. DeBenedetti, M.D.****Past President****John T. Clymer, M.D.****Executive Director****Bruce E. Robinson****Publishing Committee****Marshall B. Block, M.D., Chairman****Burnell R. Brown, M.D.****George E. Burdick, M.D.****Kenneth B. Desser, M.D.****Benjamin K. Harris, M.D.****Jonathan M. Levy, M.D.****William B. McGrath, M.D.****Jay W. Smith, M.D.****Sidney C. Werner, M.D.**

Admission to medical school remains highly competitive. Physicians are regularly asked to counsel prospective candidates about the process in Arizona. At the University of Arizona, the College of Medicine accepts 88 students per year into its entering class. These students are selected from applicants who are bona fide Arizona residents, as well as students from the three western states without medical schools: Alaska, Montana and Wyoming. Over the last few years, the pool of applicants for these 88 positions has been approximately 350 students each year. The University does not have its own application procedure, but requires all applicants to apply through the American Medical Colleges Admissions Service (AMCAS).

All applicants must meet certain requirements, which include successful completion of a year each of college English, general chemistry, physics, biology and organic chemistry. Furthermore, each applicant must have a minimum of ninety semester units of college credit, thirty of which must be upper-division, and must have taken the New Medical College Admission Test (MCAT) within two years of application. All applicants to the College are asked to submit three letters of recommendation: two from science and one from a non-science faculty. All applications are interviewed by three faculty members of the College and one local physician, located either in Phoenix, Tucson or Flagstaff, whichever is most convenient for the applicant.

Once the applicant's folder has been completed, application is considered by the College of Admissions Committee. This Committee is made up of twelve voting members and one non-voting chairperson. The Committee is composed of eight faculty members, five clinicians and three basic scientists, and four students, one from each class. The Admissions Committee works as four subcommittees, each made up of two faculty members and one student. Each subcommittee is responsible for the

review of approximately 25% of the applicant pool. Based upon each applicant file, the subcommittee determines whether the applicant should be recommended for acceptance or rejection; they also determine at what time each applicant's recommendation should be presented to the entire Admissions Committee. Each applicant's subcommittee recommendation is acted on by the entire Admission Committee and a two-third vote is necessary for acceptance, while a simple majority is necessary for rejection. In its deliberation, the Admissions Committee reviews all materials in the student's folder before reaching a decision. In general, these include letters of recommendation, interview reports, the individual's personal statement, grade point average, MCAT score and any other demographic data available to the Committee. The application cycle begins in July and closes in November. The Admissions Committee begins making decisions in December and completes all processing by March 15. Acceptance letters are sent out to applicants on January, February and March 15. Letters of rejection and letters of acceptance to the alternate list are sent out on March 15.

The Admissions Committee attempts to select those individuals who have achieved excellence, as determined in part by their grade point average and their MCAT scores. However, academic achievements are not the only criteria used. Personal qualifications such as motivation, compassion, integrity, judgment, energy and breadth of interest are given serious consideration. These noncognitive characteristics are evaluated by the interviewers as well as the comments in the letters of recommendation and the applicant's personal statement. The Admissions Committee applies affirmative action criteria to rural residents, Blacks, American Indians and Mexican Americans, since these are the most medically underserved peoples with the state.

Over the last few years, the Committee has accepted about 110 students to fill the class of 88. These additional admitted students have decided to attend other medical schools. The grade point average of the matriculated group has been a 3.5, with MCAT scores varying between 9.9 and 9.3 on a scale of 1 to 15 in the areas of biology, chemistry, physics, science problems, reading and quantitative skills. The average age at matriculation has been 24, and the class composition about 65% men and 35% women. The number of minority and rural students have averaged, respectively, about 6% of the student body.

Many physicians in Arizona have participated in various aspects of the Admission Procedure. We are most grateful for that help. By understanding the procedure, misconceptions can be avoided. If there are questions, always feel free to call the College Admissions Office.

**Andrew M. Goldner, Ph.D.**  
Associate Dean

**Louis J. Kettel, M.D.**  
Dean



*Arizona  
Medicine*



*Medical  
History*

## Extracts from the Publications of the Arizona Medical Association

(continued)

John W. Kennedy, M.D.

In this third installment we continue the excerpts from the publications of the Arizona Medical Association. From 1911 to 1943 *Southwest Medicine* was the official publication of the Association. It was a combined effort of the *New Mexico Medical Journal*, the *Arizona Medical Journal*, the *Bulletin of the El Paso County, Texas Medical Society* and the official organ of the Medical and Surgical Association of the Southwest.

By 1919 *Southwest Medicine* had become well established. Its Editor-in-Chief was George S. McLandress, M.D. of Albuquerque, New Mexico, Paul Gallagher, M.D. from El Paso, Texas was the associate editor and W. W. Watkins, M.D. from Phoenix was the assistant associate editor.

Dr. Watkins later assumed the duties of editor-in-chief. He had been the editor of the earlier publication *Arizona Medical Journal*, which had languished for lack of financial support. When Dr. Watkins retired from the position as editor of *Southwest Medicine* another Phoenix physician, Orville Harry Brown, M.D. was appointed in his place. Both of these men were stalwart leaders in organized medicine and in their respective fields of medical practice. They had a high sense of history believing that one of the purposes of a journal should be to record, as much as possible, not only the scientific perambulations of their respective societies, but also the activities of individual members.

Several editorial pleas were made to the various states and component societies of West Texas, New Mexico and Arizona to supply material. They were only partially successful in this, and while this review is not concerned with the contributions of New Mexico or West Texas to the medical history of this era, we will try to render, in abbreviation, some activities of the members of the Arizona Medical

### Editor

**Marshall B. Block, M.D.**

### Associate Editors

**Kenneth Desser, M.D.**  
**C. Herbert Fredell, M.D.**  
**Warren Gorman, M.D.**

### Editorial Board

**Thomas E. Blittker, M.D.**  
**John R. Green, M.D.**  
**John W. Kennedy, M.D.**  
**William B. McGrath, M.D.**  
**Arthur R. Nelson, M.D.**  
**Charles Nugent, M.D.**  
**Eric Prosnitz, M.D.**  
**Sydney Salmon, M.D.**  
**Lawrence Stern, M.D.**

### Managing Editor

**Bruce E. Robinson**

### Editorial Assistant

**Joan M. Alexander**



Association during the three decades in which this journal was published. This sense of history has, for the most part, been lost in the current state medical journal. It may be of no consequence to the present participants, but fifty years hence when some curious history buff really wishes to try and find out what went on, he may find it very difficult when reading the abbreviated proceedings of the state association. *"History is a set of lies agreed upon!"* (Napoleon Bonaparte - 1769-1821.)

#### Gila County Medical Society

On November 21, 1910 the Gila County Medical Society was organized with a membership of twelve, the President was J. E. Bacon, M.D., Vice President, R. D. Kennedy, M.D., and Secretary, J. L. Wales, M.D.

In 1919 they reported their membership had increased to twenty-five. Thirteen of the members were in active military service. (*This was World War I* SWM 1919, Vol. 2, Page 14.)

#### Free Clinics

In 1918 the State Board of Health was organized under the 1913 Revised Statutes of Arizona, to pass rules and regulations necessary to protect the health of the public. Probably one of the first venereal disease control units in Arizona was established in 1920 by Dr. Z. H. Husey of Douglas. This free clinic presented a new effort to detect and treat the problem by doing free Wasserman tests for syphilis and slides for gonorrhea.

#### Company Physician

Dr. H. A. Reese was employed, as chief surgeon, by the Calmont, an Arizona copper company in Bisbee. In an article he discussed the contract of a "company physician." The terms of the contract were: 1) confinements, free, 2) loss of professional dignity and 3) making unnecessary calls. He made a plea to amend the state law to have the contract over miners only, and to provide medical service free of charge, or at the most twenty-five cents a month.

#### Arizona News

In this section of the March 1919 issue the following military items appeared. (*World War I had ceased in Europe the preceding November*).

"The Service Flag of Arizona will carry at least one gold star. Lt. Jerome McK. Leonard, Douglas, Arizona was killed in action on November 8th, last. Dr. Leonard was a member of the state association and the Cochise County society."

A note further on says "among the men who have been honorably discharged from Army service and returned to civilian practice are the following: Dr. E. V. Adamson of Douglas; Dr. J. I. Butler of Tucson; Dr. Southworth of Prescott; Dr. R. E. Pool of Mayer; Dr. Coit Hughes of



The Bullet Proof Hotel, Naco, Arizona

This was the headquarters of Col. A.M. Tuthill, Commander of the Arizona National Guard Troops on the border 1916-17. When this picture was taken in August 1973, the hotel was undergoing demolition. At the turn of the century it was a well known hostel and meeting place of ranchers and miners from the surrounding territory on both sides of the border. The hotel was modern, with steam heat and thick adobe walls, hence the name "bullet proof." Poncho Villa's troops showed little respect for targets on the Arizona side of the border. Dr. Tuthill, an industrial surgeon from Morenci, later commanded troops in France in World War I and in all served more than fifty years in military service as a line officer, never as a physician. He is considered by many to be Arizona's foremost soldier/physician.

Phoenix; Dr. Harry Hughes, Jr. of Phoenix; Dr. Grant Monical of Phoenix; Dr. C. A. Thomas of Tucson; Dr. Randolph of Douglas and Dr. A. T. Kirmes of Globe, Arizona.

"Major C. E. Yount of Prescott, Arizona who was called into service with the National Guard, when the National Guard was taken to the border and has been in ever since, was promoted to Lt. Colonel and is stationed in France. "Captains Huffman and Greer of Mesa are still in the service." Lt. W. O. Sweek of Phoenix, who is at a base hospital in France writes that "Mud and waiting is hell," and worse than anything they have encountered during the fighting." (*Hurry up and wait has been an attribute of military service for centuries*).

#### Clinical Reports

Clinical observations abound in these early publications. Dr. Yandell in the Indian Service and stationed at Sacaton, Arizona reported on "a new and successful treatment of bacillary dysentery." He reported 102 cases of bacillary dysentery with one death, at the Sacaton Hospital, and attributed his low mortality to the use of Adrenalin

Chloride. This was administered hypodermically to control hemorrhages from the dysentery. He thought Thymol, in large doses, was a specific remedy for bacillary dysentery.

Almost every number had an article on tuberculosis and the March issue of 1919 had an article on "Early Diagnosis of Renal Tuberculosis" by Dr. Wright of El Paso.

Warner Watkins was a prolific contributor during these years and in this March issue he reports a case of Perthes' disease giving as short review of the historical descriptions. He credited Freiberg of Cincinnati in 1905 as probably being the first to recognize the disease. In 1909 Legg of Boston reported five cases, and in 1910 Calve reported ten cases, but the classical monograph was presented by George Perthes in 1913 in which he suggested the name "Osteochondritis Deformans Juvenilis." SWM 1919, Vol. 2, No. 15.

#### Our Purposes

The Association held its annual meeting June 2 and 3, 1919 in Globe. The total number of dues paying association members was 191. A complete report of



the sessions appeared in the June issue along with the President's annual address to the membership. President W. Warner Watkins entitled it "Our Purposes."

He suggested that these purposes fell into three groups depending on our relations with our patients, with the community at large, and with our fellow members of the association. He developed this completely, covering a wide range of problems which physicians of that era faced. He had this to say about medical defense. "We have a Medical Defense provision whose chief reliance is in the fact that a doctor *will not dare* to go upon the witness stand and testify that the work upon which a malpractice suit is based was improperly or unskillfully performed. This does not mean that we intimidate our members and prevent their telling the truth. Our defense law provides that when a practitioner is guilty of gross negligence and deserves punishment, he is not to be defended. But when our defense Committee investigates and finds that the malpractice suit is pure blackmail and the doctor was not guilty of negligence, every member of the Association is supposed to accept that finding and exercise the becoming humility which years of experience ought to create, realizing that his own opinion is not infallible and that he is frankly presumptuous when he elects to pass judgment on another doctor's good work." And, he had some more strong words about this situation, "while we are just beginning to recognize the benefits of our Defense Law and while we generally admit that it is unprofessional, unethical and traitorous to go on the witness stand and assist a plaintiff in the blackmail suit, by pretending to know more about the work than the doctor who performed it, our consciences are still lethargic on the question of the honorable conferee, who behind the closed doors of his office, instills the poison of doubt into the mind of the patient regarding the ability of his previous physician or surgeon, who blatantly tells the patient that the work of the previous doctor was not up to the high quality which he, the present consultant is capable of." *SWM 1919, Vol. 1, No. 18.*

In the next issue of *Southwest Medicine*, Vol. 3, No. 10, 1919, Dr. William Wylie, M.D., LL.B., F.A.C.S. of Phoenix, and probably the first lawyer/physician trained practitioner in Arizona, commented further on malpractice.

Dr. Wylie reviewed some of the important principles of malpractice law as interpreted by the courts and spent a good deal of time on the problem of the school of medicine in which you were trained. "It would seem that the Christian Scientists would be in the same class as the clairvoyant, magnetic healer, mental scientists, etc., but such is not the case for

in the case of all of these different practitioners errors resulting in injury, the practitioners held for the damage suffered and courts holding that it is against public policy to do otherwise. He quoted a case in which the courts held that Christian Science was in a class by itself. All other schools of medicine, surgery or osteopathy had some things in common, for instance the anatomy and physiology of the human body, but the Christian Science practitioner did not have any of that, and the courts didn't hold him to it. *(So the Camel Cultist got his head under the tent flap — and now can demand and receive medicare payments! He now is inside the TENT!)*

#### Arizona News

It was noted that Major W. H. Sargent of Phoenix and Major G. S. Martin of Safford had been discharged from Army Service.

#### Industrial Medicine

Dr. Watkins, in an editorial concerning the problems of industrial medicine and surgery in Arizona, made the following point. "The problems which confront the industries and their medical departments, in Arizona, are more acute than those which bother the industries of other states. This is owing to our compensation laws, the like of which are not found anywhere else on earth; no where else in the United States, is the employer placed absolutely at the mercy of the injured employee, without any defense and without any limit to the amount of damages which can be collected." He goes on to say "Who can conceive of a compensation system wherein the decision is made on the basis of the story told by the injured man and his hired witnesses, without allowing the employer to present his case? This is the unevitable situation of Arizona industry under our "Employers Liability Act" just declared constitutional by the United States Supreme Court." And furthermore, an accused industrial surgeon was not allowed to testify in his own behalf or have any other medical witness testify for him, this situation was intolerable but it was several years before it could be corrected. *(And if the industrial surgeons of 1981 think they have it bad, let them go back and review the situation just after WWI.)* *SWM 1919, Vol. 2, No. 9.*

#### Medical Defense Fund

There was a movement to establish a Medical Defense Fund to protect members when they were sued for malpractice. This was begun in 1912 *Arizona Medicine*, Vol. 38, No. 4, page 290. It was finally inaugurated and seems worthwhile to quote the entire committee report rendered by John A. Bacon, M.D., Chairman at this meeting which took place in Globe in 1919.

"The committee feels that while it probably has extended this relief in a case where technically it is not warranted, yet

the action resulted in a perfectly innocent and natural manner, and we, who admitting the error, strongly recommend that the Association authorize a committee to assume the payment of the bill. The balance on hand according to the report of the treasurer, as of June 1919 appears to be \$2,339.20."

"The committee feels that the work accomplished this year, while in the nature of preliminary work in all of these cases, except one, has had a far reaching and important effect in two ways. First, the members of the Association have been made to feel that they have a measure of protection which, coming from the fellows is whole hearted and earnest. Second, those lay people and attorneys who have been interested in the above recorded actions, have been made to realize that there is a concerted intention on the part of the medical profession of the entire state to stand by, support and protect any of their members who are in danger of being ruined by these actions for malpractice which are largely in the nature of blackmail, and so the expectations and promises of those of us who were instrumental in organizing the Medical Defense feature of the State Association's activity seem about to be abundantly fulfilled." *(The case alluded to in the comment, "... extended this relief in a case where technically it is not warranted. ... apparently involved a non-member physician. The gentleman was sued, and the committee took up his defense, even though he was not an Association member. It doesn't state whether he subsequently joined.)*

#### Arizona Notes

Eight more physicians were listed as discharged from Army service. They were from all over the state: Miami, Yuma, Bisbee, Globe, Nogales, Verdugo, Komatke and Winslow.

#### Ophthalmology

In the November 1919 issue of *Southwestern Medicine* Ancil Martin and Warner Watkins collaborated on a paper "Foreign Body Injuries to the Eye Localization and Removal of Foreign Bodies." In this paper there is a detailed description of meticulous care that is necessary to radiographically localize foreign bodies in the eye.

Martin was among the earliest eye specialists to arrive in Arizona, coming to Phoenix shortly before 1900. He was the first president of the Board of Medical Examiners when it was organized. He also credited with being the first to recognize that rabbit fever, later identified as tularemia, was transmissible to man.

#### Medicine and Surgery

There was an article published in 1919 by William W. Graves of St. Louis entitled "An Appeal for Human Embryologic Material." "It is desired that the material be secured as soon as possible after delivery,



nmersed in a 10% formalin in a sealed container and be forwarded to my address, charges collect." (Now, fifty years later, if any one made such a plea he would be surrounded by a long parade of protesters, legal tanglements, and an irate press.)

An unsigned editorial (probably originating from the Associate Editor, Dr. Gallagher in El Paso) is quoted to give you some idea that not only were newspaper editors, of the era, straight shooting somebodies, but medical editors made clear what was on their minds too. The subject is illicit surgery.

"In the matter of what surgery is allowable, there seems to be greater freedom in this part of the country than in any other with which we are familiar. Many doctors here seem to believe that the only thing necessary to legalize and make ethical any operation is the consent of the desire of the patient. Of such carpenters (with apology to all honest carpenters) there are too many in El Paso. What the surrounding territory has, we do not know. We hope the conditions here are better.

"Some there may be, who believe that an editor ought not to touch upon such things. To these we answer that the doctors function is not, at least should not be, that of a bond servant; rather it is to advise and counsel, in the best sense of these words, not only his patients but the community which he serves.

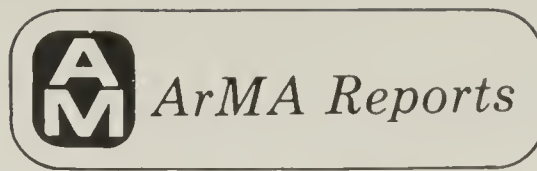
"If a young and attractive woman with congenital cataract in each eye were to apply to an oculist to have these impediments to vision removed, and if he were to state that her whole purpose in seeking relief was to engage in prostitution, what decent oculist would demean his profession by aiding her in her plans?

"The other day we were asked by a colleague to do a vasectomy for a man who felt that he had a large enough family. He had three children; just enough to perpetuate his line if no fatalities occurred before their time for recreation." (Ah, how our customs and system of morals do change).

"The El Paso Pasteur Institute, an institution for the prevention of rabies is conducted strictly upon ethical principles of Pasteur." So read a notice in Southwest Medicine signed by B. M. Forsham, M.D. and Hugh S. White, M.D. (Cowboys, hunters and trappers, who slept the open on the ground, were frequently bitten by wild skunks. In one year eighteen fatalities were recorded from the western United States. Prior to the El Paso Pasteur Institute patients were sent to Chicago for the "Pasteur Treatment.")

#### Arizona News

It was noted that three more physicians were discharged from service, Major Alfred E. Lemon of Douglas, Lt. F. F. Malone of Phoenix, and Captain H. D.etcherside of Yuma. (Indeed one wonders how many physicians there were in Arizona who were NOT called into service, WWI).



The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

#### Governmental Services Committee

Meeting of the Governmental Services Committee of the Arizona Medical Association held April 15, 1981, at 810 W. Bethany Home Road, Phoenix, convened at 6:55 p.m., Louis C. Kossuth, M.D., Chairman, presiding.

##### Chairman's Report

#### DHS Questionnaire

Dr. Kossuth informed the committee that he responded to the questionnaire from the DHS along with a personal letter to Dr. Sarn. Dr. Kossuth indicated he would be willing to discuss any of the items on the questionnaire with Dr. Sarn in more detail, if he so desired. Received for information only.

#### Activities Report to House of Delegates

Dr. Kossuth forwarded a letter to the President indicating the activities of the Governmental Services Committee. It was stated that a workshop on Health Planning would be presented at the Annual Meeting on May 24, 1981, as part of the program. Received for information only.

#### National Health Service Corp Mohave County

Dr. Kossuth briefed the committee regarding the request for National Health Service Corps manpower in Riviera, Arizona. We have been asked to provide comments in this issue. Also discussed was the opposition letters from Dr. Powell and Dr. Ritter. It was suggested that we prepare a letter of protest enclosing the letters we have from Dr. Powell and Dr. Ritter citing various aspects that we feel are not in order and recommend they not be approved. A suggestion was also made that we get a response from Mohave before we submit the letter.

It was moved and carried to forward a letter of protest to the Department of Health and Human Services for the use of National Health Service Corps Manpower in Riviera, Arizona, citing various aspects that we feel are not in order and recommend they not be approved.

It was also moved and carried to get a response from Mohave County before we submit the letter of opposition.

#### Proposed Health Planning Policy

Dr. Kossuth briefed the committee on the proposed health planning policy. He reviewed the policy with the committee and requested any changes that the committee felt were necessary. The proposed health planning policy will be covered at the workshop at the annual meeting. Received for information.

#### Physician Participation Health Planning Workshop

Dr. Kossuth informed the committee of the pre-workshop packets that will be forwarded prior to the Annual Meeting. He reviewed the pre-workshop packet with the committee covering the items that will be discussed and the time limit for each item. The workbooks will be available at the workshop for the individuals who will be participating in this program. Received for information.

#### EXECUTIVE COMMITTEE

The meeting of the Executive Committee of the Arizona Medical Association, Inc. held in South Court Room #1 on the Third Floor of the Convention Centre at The Pointe Resort, 7677 North 16th Street, Phoenix, Arizona, on Wednesday, May 20, 1981, a quorum being present, convened at 6:16 a.m., John T. Clymer, M.D., President and Chairman, presiding.

#### Bomex Appointments

Letter dated April 1, 1981 from Governor Bruce Babbitt acknowledging receipt of ArMA's recommendations for appointment to the Board of Medical Examiners. Received.

The Executive Committee was advised by Bruce E. Robinson that, as of this date, the Governor had made no appointments to fill the vacancies presently existing on BOMEX.

#### 1981-82 Meeting Schedule

It was moved and carried approving the following tentative dates for meetings of the Executive Committee during 1981-82:

July 17, 1981 - 6:30 P.M. - Friday  
August 7, 1981 - 6:30 P.M. - Friday - (B of D 8/8) - Phoenix  
September 18, 1981 - 6:30 P.M. - Friday - Phoenix  
October 23, 1981 - 6:30 P.M. - Friday - (B of D 10/24) - Tucson  
November 20, 1981 - 6:30 P.M. - Friday - Phoenix  
December 18, 1981 - 6:30 P.M. - Friday - Phoenix  
January 22, 1982 - 6:30 P.M. - Friday - (B of D 1/23) - Phoenix  
February 19, 1982 - 6:30 P.M. - Friday - Phoenix



March 26, 1982 - 6:30 P.M. - Friday - (B of D 3/27) - Phoenix

April 16, 1982 - 6:30 P.M. - Friday - Phoenix

May 26, 1982 - 6:00 A.M. - Wednesday - (B of D 5/26) - Annual Meeting

#### **Scholarship Funds**

Letter of April 7, 1981 from Arthur V. Dudley, Jr., M.D., Chairman of the Benevolent and Loan Fund Committee, relating to scholarships. *Received*

#### **Medicare Fee Profiles**

AMA's response of 4/28/81 regarding Medicare Fee Profiles and ArMA's earlier inquiry on request received from the Medical Society of the County of St. Lawrence, Inc. *Received*.

#### **Request from Albert Rosenblatt, M.D.**

The Committee reviewed the request from Albert Rosenblatt, M.D. for consideration as a recommendation for appointment to the Board of Medical Examiners and, following discussion,

*It was moved and carried to request from Albert Rosenblatt, M.D., a written indication of support from the Mohave County Medical Society of Dr. Rosenblatt's desire to be considered as a possible recommendation by ArMA for appointment to the Board of Medical Examiners as future vacancies on that Board occur.*

#### **Review of Board of Directors' Agenda for 5/20/81**

The Board of Directors' agenda for its 5/20/81 meeting was reviewed and discussed, with additions and changes being made.

### **BOARD OF DIRECTORS**

The meeting of the Board of Directors of the Arizona Medical Association, Inc. held in North Court Room #1 and #2 on the Third Floor of the Convention Centre at The Pointe Resort, 7677 N. 16th Street, Phoenix, Arizona, on Wednesday, May 20, 1981, a quorum being present, convened at 10:02 a.m., John T. Clymer, M.D., President and Chairman, presiding.

#### **ArMA Auxiliary**

##### **Activities Report**

Mrs. Joyce Newman, President of the ArMA Auxiliary, briefly reported to the Board on the status of various activities presently being conducted throughout the state. Mrs. Newman commented regarding the workshops which would be held during the annual meeting, requesting as many Board members as possible attend.

##### **Pima Council to Immunize Arizona's Children**

Letter of thanks from the Pima Council to Immunize Arizona's Children dated 5/4/81. *Received*.

#### **Arizona Prescription Drug Task Force**

*It was moved and carried to approve the appointment of Mrs. L. David (Joyce) Newman as a member of the Arizona Prescription Drug Task Force.*

#### **Letter of Appreciation**

Letter dated April 25, 1981 from the ArMA Auxiliary expressing its appreciation for the assistance received from ArMA and its staff in various projects throughout the year. *Received*.

#### **Physician's Survivor Information**

Brochure jointly prepared by ArMA and the Auxiliary entitled "Physician's Survivor Information". *Received*.

#### **ArMPAC Activities Report**

Bruce E. Robinson reported that, as of the 15th of May, 1981, and following the first solicitation for membership in ArMPAC, 89 memberships had been received.

#### **American Medical Association**

##### **Briefing Session**

Alan R. Nelson, M.D., member of the AMA Board of Trustees, was introduced to the Board and briefly spoke regarding the role of the American Medical Association and what it actually does for the physician, mentioning, among other things, representation of the medical profession, as well as the public; provision of information to members, the public, government, etc.; establishment of standards of conduct and performance and establishment of standards of education. Additionally, Dr. Nelson touched on those issues which would be considered by the AMA House of Delegates during its June meeting.

##### **Involvement Kit**

Kit recently developed by the AMA, entitled "Involvement: The Hallmark of our Profession." *Received*.

#### **Board of Directors**

##### **1981-82 Meeting Schedule**

*It was moved and carried to accept and approve the following schedule of Board of Directors' meeting for 1981-82:*

August 8, 1981 - Saturday - 10:00 A.M. - Phoenix

October 24, 1981 - Saturday - 10:00 AM. - Tucson

January 23, 1982 - Saturday - 10:00 A.M. - Phoenix

March 27, 1982 - Saturday - 10:00 A.M. - Phoenix

May 26, 1982 - Wednesday - 8:00 A.M. - Annual Meeting

May 27, 1982 - Thursday - 12:00 Noon - Annual Meeting

##### **Suit Re: ICA Activities**

The Board received the letter dated April 16, 1981 from Snell & Wilmer relative to a possible suit against the Attorney General with respect to Industrial Commission activities by the Association and following a reiteration by Edward Jacobson, Esq. of the

contents of that letter — that no further action be taken by the Association — the determination was made to follow advice of counsel and take no further action on this matter.

#### **Certificate of Need**

The Board reviewed the Revised Joint Position Paper on Certificate of Need which had been approved by the Board of Directors of the Arizona Hospital Association on March 6, 1981.

*It was moved and carried to adopt the Joint Position by the Arizona Hospital Association and the Arizona Medical Association on Certificate of Need as approved by ArMA's Board of Directors on March 6, 1981.*

#### **BOMEX Appointments**

The Board was advised that, during 1982, two terms on the Board of Medical Examiners would be completed, those presently being served by Arthur T. Lindberg, M.D. and Philip Z. Saba, M.D. and it was determined that early consideration would be given to possible recommendations for filling of vacancies should these occur.

#### **Membership Status Report**

Misty Coumbe reported to the Board on the current status of membership in ArMA, stating that membership was, at this point in time, being maintained.

A. Recap by County Society and Class of Membership as of 4/30/81. *Received*.

B. Report of Dues-Paying Members as of 4/30/81. *Received*.

#### **Executive Committee**

##### **Ratification of Minutes**

*It was moved and carried to accept and ratify the minutes of the Executive Committee meeting held on March 20, 1981.*

##### **Membership Classification Change Approved**

###### **Gila County Medical Society**

1. Harold W. Law, M.D. - Active to Associate - Account Retirement - Due Exempt - Effective 1/1/81.

###### **Maricopa County Medical Society**

1. Jack E. Brooks, M.D. - Active to Associate - Account Retirement - Due Exempt - Effective 1/1/81.

2. James E. Campbell, M.D. - Active to Associate - Account Residency - Due Exempt - Effective 1/1/81.

3. Eugene Migray, M.D. - Active to Associate - Account Retirement - Due Exempt - Effective 1/1/81.

#### **Finance Committee**

The Board received the recommendations of the Finance Committee made during meeting of April 11, 1981 and after reviewing and discussing each took the following action:

##### **CME Accreditation Fees**

*It was moved and carried to accept the recommendation of the Finance Committee that the CME Accreditation*



# for Knotts in the night

Prescribe new formula

# Quinamm\*

## (quinine sulfate tablets)

each tablet contains quinine sulfate 260 mg



## Specific therapy for painful night leg cramps

# Merrell Dow

\*Trademark of MERRELL-NATIONAL LABORATORIES Inc  
Cayey, Puerto Rico 00633

Nocturnal recumbency leg muscle cramping is frequently an unwelcome bedfellow for many patients—especially those with arthritis, diabetes, or peripheral vascular disease... consider Quinamm... simple, convenient dosage—usually just one tablet at bedtime... can provide restful, welcome sleep without night leg cramps.

### Quinamm™

(quinine sulfate tablets)

CAUTION: Federal law prohibits dispensing without prescription  
BRIEF SUMMARY

#### INDICATIONS AND USAGE

For the prevention and treatment of nocturnal recumbency leg muscle cramps

#### CONTRAINDICATIONS

Quinamm may cause fetal harm when administered to a pregnant woman. Congenital malformations in the human have been reported with the use of quinine, primarily with large doses (up to 30 g) for attempted abortion. In about half of these reports the malformation was deafness related to auditory nerve hypoplasia. Among the other abnormalities reported were limb anomalies, visceral defects, and visual changes. In animal tests, teratogenic effects were found in rabbits and guinea pigs and were absent in mice, rats, dogs, and monkeys. Quinamm is contraindicated in women who are or may become pregnant. If this drug is used during pregnancy, or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus. Because of the quinine content, Quinamm is contraindicated in patients with known quinine hypersensitivity and in patients with glucose-6-phosphate dehydrogenase (G-6-PD) deficiency.

Since thrombocytopenic purpura may follow the administration of quinine in highly sensitive patients, a history of this occurrence associated with previous quinine ingestion contraindicates its further use. Recovery usually occurs following withdrawal of the medication and appropriate therapy.

This drug should not be used in patients with tinnitus or optic neuritis or in patients with a history of blackwater fever.

#### WARNINGS

Repeated doses or overdosage of quinine in some individuals may precipitate a cluster of symptoms referred to as cinchonism. Such symptoms, in the mildest form, include ringing in the ears, headache, nausea, and slightly disturbed vision, however, when medication is continued or after large single doses, symptoms also involve the gastrointestinal tract, the nervous and cardiovascular systems, and the skin.

Hemolysis (with the potential for hemolytic anemia) has been associated with a G-6-PD deficiency in patients taking quinine. Quinamm should be stopped immediately if evidence of hemolysis appears.

If symptoms occur, drug should be discontinued and supportive measures instituted. In case of overdosage, see OVERDOSAGE section of prescribing information.

#### PRECAUTIONS

General  
Quinamm should be discontinued if there is any evidence of hypersensitivity (See CONTRAINDICATIONS). Cutaneous flushing, pruritus, skin rashes, fever, gastric distress, dyspnea, ringing in the ears, and visual impairment are the usual expressions of hypersensitivity, particularly if only small doses of quinine

have been taken. Extreme flushing of the skin accompanied by intense, generalized pruritus is the most common form. Hemoglobinuria and asthma from quinine are rare types of idiosyncrasy.

In patients with atrial fibrillation, the administration of quinine requires the same precautions as those for quinidine. (See Drug Interactions.)

#### Drug Interactions

Increased plasma levels of digoxin and digitoxin have been demonstrated in individuals after concomitant quinidine administration. Because of possible similar effects from use of quinine, it is recommended that plasma levels for digoxin and digitoxin be determined for those individuals taking these drugs and Quinamm concomitantly.

Concurrent use of aluminum-containing antacids may delay or decrease absorption of quinine.

Cinchona alkaloids, including quinine, have the potential to depress the hepatic enzyme system that synthesizes the vitamin K-dependent factors. The resulting hypoprothrombinemic effect may enhance the action of warfarin and other oral anticoagulants.

The effects of neuromuscular blocking agents (particularly pancuronium, succinylcholine, and tubocurarine) may be potentiated with quinine and result in respiratory difficulties.

Urinary alkalinizers (such as acetazolamide and sodium bicarbonate) may increase quinine blood levels with potential for toxicity.

#### Drug Laboratory Interactions

Quinine may produce an elevated value for urinary 17-ketogenic steroids when the Zimmerman method is used.

#### Carcinogenesis, Mutagenesis, Impairment of Fertility

A study of quinine sulfate administered in drinking water (0.1%) to rats for periods up to 20 months showed no evidence of neoplastic changes.

Mutation studies of quinine (dihydrochloride) in male and female mice gave negative results by the micronucleus test. Intraperitoneal injections (0.5 mM/kg) were given twice, 24 hours apart. Direct *Salmonella typhimurium* tests were negative when mammalian liver homogenate was added; positive results were found.

No information relating to the effect of quinine upon fertility in animal or in man has been found.

#### Pregnancy

Category X. See CONTRAINDICATIONS.

#### Nonteratogenic Effects

Because quinine crosses the placenta in humans, the potential for fetal effects is present. Stillbirths in mothers taking quinine have been reported in which no obvious cause for the fetal deaths was shown. Quinine in toxic amounts has been associated with abortion. Whether this action is always due to direct effect on the uterus is questionable.

#### Nursing Mothers

Caution should be exercised when Quinamm is given to nursing women because quinine is excreted in breast milk (in small amounts).

#### ADVERSE REACTIONS

The following adverse reactions have been reported with Quinamm in therapeutic or excessive dosage (individual or multiple symptoms may represent cinchonism or hypersensitivity):

**Hematologic:** acute hemolysis, thrombocytopenic purpura, agranulocytosis, hypoprothrombinemia.

**CNS:** visual disturbances including blurred vision with scotomata, photophobia, diplopia, diminished visual fields, and disturbed color vision; tinnitus, deafness, vertigo, headache, nausea, vomiting, fever, apprehension, restlessness, confusion, and syncope.

**Dermatologic/allergic:** cutaneous rashes (urticarial), the most frequent type of allergic reaction; papular or scarlatinai; pruritus; flushing of the skin; sweating; occasional edema of the face.

**Respiratory:** asthmatic symptoms.

**Cardiovascular:** anginal symptoms.

**Gastrointestinal:** nausea and vomiting (may be CNS-related); epigastric pain.

#### DRUG ABUSE AND DEPENDENCE

Tolerance, abuse, or dependence with Quinamm has not been reported.

#### OVERDOSAGE

See prescribing information for a discussion on symptoms and treatment of overdose.

#### DOSSAGE AND ADMINISTRATION

1 tablet upon retiring. If needed, 2 tablets may be taken nightly—1 following the evening meal and 1 upon retiring.

After several consecutive nights in which recumbency leg cramps do not occur, Quinamm may be discontinued in order to determine whether continued therapy is needed.

Product Information as of October, 1980

Licensor of Merrell

MERRELL NATIONAL LABORATORIES Inc  
Cayey, Puerto Rico 00633

Direct Medical Inquiries to

## Merrell



MERRELL DOW PHARMACEUTICALS INC.  
Subsidiary of The Dow Chemical Company  
Cincinnati, OH 45215, U.S.A.

1-8137 (Y437C)MNQ-699



Although weight loss achieved in a weight control program varies from patient to patient, this simulated sequence of a professional model illustrates dramatically the benefits of a successful weight loss program.



getting there...



...takes dietary restriction, regular exercise, behavior modification, and sometimes the addition of an effective anorectic.

prescribe

# Tenuate\* Dospan\*<sup>®</sup> (diethylpropion hydrochloride USP)

75 mg controlled-release tablets

the #1 prescribed anorectic

An effective short-term adjunct in an indicated weight loss program

Overweight patients in certain diagnostic categories often require strict obesity control. Diethylpropion hydrochloride has been reported useful in obese patients with certain complications. While it is not suggested that Tenuate in any way reduces these complications in the overweight, it may have a useful place as a short-term adjunct in a prescribed dietary regimen. Tenuate should not be administered to patients with severe hypertension; see additional Precautions and Adverse Reactions on this page.

In uncomplicated obesity

Many patients, on the other hand, present with excess fat but no disease. While this condition is often termed uncomplicated obesity, complications of both a social and a psychologic nature may be distressingly real for the patients. In these cases, a short-term regimen of Tenuate can help reinforce your dietary counsel during the important early weeks of an indicated weight loss program.

Clinical effectiveness

The anorectic effectiveness of diethylpropion hydrochloride is well documented. No less than 18 separate double-blind, placebo-controlled studies attest to its usefulness in daily practice.<sup>1</sup> And the unique chemistry of Tenuate provides "...anorectic potency with minimal overt central nervous system or cardiovascular stimulation."<sup>2</sup> Compared with the amphetamines, diethylpropion has minimal potential for abuse.

Tenuate—it makes sense.  
And it's responsible medicine.

# Merrell Dow

\*Registered Trademarks of MERRELL-NATIONAL LABORATORIES Inc.  
Cayey, Puerto Rico 00633

References: 1. Citations available on request from Merrell-Dow Pharmaceuticals Inc., Cincinnati, Ohio 45215. 2. Hoekenga, M.T. et al. A comprehensive review of diethylpropion hydrochloride. Central Mechanisms of Anorectic Drugs. S. Garattini and P. Samanin, Ed., New York: Raven Press, 1978, pp. 391-404.

Tenuate\*<sup>®</sup> (diethylpropion hydrochloride USP)

Tenuate Dospan\*<sup>®</sup> (diethylpropion hydrochloride USP)  
controlled-release

AVAILABLE ONLY ON PRESCRIPTION

#### Brief Summary

**INDICATION:** Tenuate and Tenuate Dospan are indicated in the management of exogenous obesity as a short-term adjunct (a few weeks) in a regimen of weight reduction based on caloric restriction. The limited usefulness of agents of this class should be measured against possible risk factors inherent in their use such as those described below.

**CONTRAINDICATIONS:** Advanced arteriosclerosis, hyperthyroidism, known hypersensitivity or idiosyncrasy to the sympathomimetic amines, glaucoma. Agitated states. Patients with a history of drug abuse. During or within 14 days following the administration of monoamine oxidase inhibitors. (Hypertensive crises may result.)

**WARNINGS:** If tolerance develops, the recommended dose should not be exceeded in an attempt to increase the effect; rather, the drug should be discontinued. Tenuate may impair the ability of the patient to engage in potentially hazardous activities such as operating machinery or driving a motor vehicle. The patient should therefore be cautioned accordingly. When central nervous system active agents are used, consideration must always be given to the possibility of adverse interactions with alcohol. **Drug Dependence:** Tenuate has some chemical and pharmacologic similarities to the amphetamines and other related stimulant drugs that have been extensively abused. There have been reports of subjects becoming psychologically dependent on diethylpropion. The possibility of abuse should be kept in mind when evaluating the desirability of including a drug as part of a weight reduction program. Abuse of amphetamines and related drugs may be associated with varying degrees of psychologic dependence and social dysfunction which, in the case of certain drugs, may be severe. There are reports of patients who have increased the dosage to many times that recommended. Abrupt cessation following prolonged high dosage administration results in extreme fatigue and mental depression; changes are also noted on the sleep EEG. Manifestations of chronic intoxication with anorectic drugs include severe dermatoses, marked insomnia, irritability, hyperactivity, and personality changes. The most severe manifestation of chronic intoxication is psychosis, often clinically indistinguishable from schizophrenia. **Use in Pregnancy:** Although rat and human reproductive studies have not indicated adverse effects, the use of Tenuate by women who are pregnant or may become pregnant requires that the potential benefits be weighed against the potential risks. **Use in Children:** Tenuate is not recommended for use in children under 12 years of age.

**PRECAUTIONS:** Caution is to be exercised in prescribing Tenuate for patients with hypertension or with symptomatic cardiovascular disease, including arrhythmias. Tenuate should not be administered to patients with severe hypertension. Insulin requirements in diabetes mellitus may be altered in association with the use of Tenuate and the concomitant dietary regimen. Tenuate may decrease the hypotensive effect of guanethidine. The least amount feasible should be prescribed or dispensed at one time in order to minimize the possibility of overdosage. Reports suggest that Tenuate may increase convulsions in some epileptics. Therefore, epileptics receiving Tenuate should be carefully monitored. Titration of dose or discontinuance of Tenuate may be necessary.

**ADVERSE REACTIONS:** Cardiovascular: Palpitation, tachycardia, elevation of blood pressure, precordial pain, arrhythmia. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride. Central Nervous System: Overstimulation, nervousness, restlessness, dizziness, jitteriness, insomnia, anxiety, euphoria, depression, dysphoria, tremor, dyskinesia, mydriasis, drowsiness, malaise, headache, rarely psychotic episodes at recommended doses. In a few epileptics an increase in convulsive episodes has been reported. Gastrointestinal: Dryness of the mouth, unpleasant taste, nausea, vomiting, abdominal discomfort, diarrhea, constipation, other gastrointestinal disturbances. Allergic: Urticaria, rash, eczema, erythema. Endocrine: Impotence, changes in libido, gynecomastia, menstrual upset. Hematopoietic System: Bone marrow depression, agranulocytosis, leukopenia. Miscellaneous: A variety of miscellaneous adverse reactions has been reported by physicians. These include complaints such as dyspnea, hair loss, muscle pain, dysuria, increased sweating, and polyuria.

**DOSEAGE AND ADMINISTRATION:** Tenuate (diethylpropion hydrochloride). One 25 mg tablet three times daily, one hour before meals, and in the evening if desired to overcome night hunger. Tenuate Dospan (diethylpropion hydrochloride controlled-release). One 75 mg tablet daily, swallowed whole. In maintenance, Tenuate is not recommended for use in children under 12 years of age.

**OVERDOSSAGE:** Manifestations of acute overdosage include restlessness, tremor, hyperreflexia, rapid respiration, confusion, assaultiveness, hallucinations, panic states, fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Overdose of pharmacologically similar compounds has resulted in fatal poisoning usually terminating in convulsions and coma. Management of acute Tenuate intoxication is largely symptomatic and includes lavage and sedation with a barbiturate. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendation in this regard. Intravenous phenytoin (1 mg/kg) has been suggested on pharmacologic grounds for possible acute, severe hypotension if this complicates Tenuate overdosage.

Product Information as of June, 1980

Licensee of Merrell

MERRELL-NATIONAL LABORATORIES Inc.  
Cayey, Puerto Rico 00633

Direct Medical Inquiries to

Merrell



MERRELL-DOW PHARMACEUTICALS INC.  
Subsidiary of The Dow Chemical Company  
Cincinnati, OH 45215 U.S.A.



fee be set at \$250.00.

#### **1981 Budget Adjustment**

*It was moved and carried to accept the recommendation of the Finance Committee that the Executive Director of the Association limit salaries (Account 518) during 1981 to \$275,000.00, a reduction of \$33,000.00 from the originally budgeted amount of \$308,000.00.*

#### **WPPA Board of Directors**

*It was moved and carried that the expense item for travel reimbursement for attendance at meetings of the Board of Directors of the Western Physicians Purchasing Association be deleted from the ArMA budget.*

#### **Financial Evaluation**

*It was moved and carried to accept the recommendation of the Finance Committee that the Arizona Medical Association engage and employ an organization to conduct a financial evaluation of ArMA's Activities.*

#### **Health Manpower Committee**

The Board received numerous recommendations from the Health Manpower Committee made during its meeting held on May 7, 1981, and after a review and discussion, the following action was taken.

#### **1980 Homeopathy Act**

*It was moved and carried to accept the recommendation of the Health Manpower Committee that legal counsel be consulted to determine whether the Homeopathic Act can be challenged as to germaneness and that, as an alternative, if a challenge to germaneness does not appear viable, a bill be developed to repeal the homeopathy act.*

#### **Midwifery**

*It was moved and carried to accept the recommendation of the Health Manpower Committee that ArMA's Maternal and Child Health Care Committee be directed to develop a position paper on lay midwifery.*

Due to the hour and the opening of the First Session of the House of Delegates scheduled for 10:00 a.m., the Board deferred action on the balance of the recommendations of the Health Manpower Committee until this meeting could be reconvened.

#### **Other Business**

#### **8th Annual Arizona Conference on Rural Health**

The Board received and reviewed the letter dated 5/5/81 from the Yavapai County Medical Society requesting endorsement and financial support from the Association for the 8th Annual Arizona Conference on Rural Health to be conducted in Prescott August 21 and 22, 1981, together with the 3/18 letter from the University of Arizona, the

tentative program for that conference and the 5/8 letter of Kenneth L. Raessler, M.D., President of the Yavapai County Medical Society.

*It was moved and carried that the Arizona Medical Association endorse and financially support the 8th Annual Arizona Conference on Rural Health to be conducted in Prescott, Arizona, on August 21 and 22, 1981.*

#### **House of Delegates' Agenda**

The Board reviewed the agenda for the First and Second Sessions of the House of Delegates.

#### **1975 Audit**

The Board was advised that the Internal Revenue Service had verbally advised the Association that it has dropped the last question, that of unrelated income, raised in the 1975 audit.

The meeting adjourned at 9:49 a.m., to be reconvened at 12:00 Noon on Thursday, May 21, 1981, or as soon thereafter as a quorum is present, to consider all other items of business.

This being the time scheduled for the continuation of the May 20, 1981 Board of Directors' meeting, the meeting was reconvened at 12:16 p.m. on Thursday, May 21, 1981, in Pointes of View "C" and "D" of the Pointe of View Restaurant at The Pointe Resort, 7677 N. 16th Street, Phoenix, Arizona, Clyde W. Kurtz, M.D., President and Chairman, presiding.

#### **Health Manpower Committee**

##### **Chiropractic - Revised Position Paper**

*It was moved and carried that the Arizona Medical Association, Inc. adopt, as and for its position Re: Chiropractic, the amended position paper attached hereto and by this reference incorporated as a portion of these minutes.*

##### **Naturopathy - Revised Position Paper**

*It was moved and carried that the Arizona Medical Association, Inc. adopt, as and for its position Re: Naturopathy, the amended position paper attached hereto and by this reference incorporated as a portion of these minutes.*

##### **Nurse Practitioner - Revised Position Paper**

*It was moved and carried that the Arizona Medical Association, Inc. adopt, as and for its position Re: Nurse Practitioner, the amended position paper attached hereto and by this reference incorporated as a portion of these minutes.*

##### **Podiatry - Reaffirmation of Position**

*It was moved and carried that the Arizona Medical Association, Inc. reaffirm its position Re: Podiatry as more particularly set forth in the position paper attached hereto and by this reference incorporated as a portion of these minutes.*

Letter dated May 6, 1981 from the Antitrust Division of the U. S. Department of Justice relating to Arizona Podiatrists - Staff Privileges Received.

#### **Education of Limited License Practitioners**

Resolution submitted to AMA by the Arizona Delegation as directed by the ArMA Board of Directors. Received.

#### **Legislative Committee**

##### **Legislative Session**

Final Status Report of the First Regular Session of the Thirty-Fifth Legislature Received.

##### **Indigent Health Care Committee, Ad Hoc - Confirmation of Appointment**

The Board determined that, inasmuch as the appointment of all committees for the 1981-82 year had been handled by action of the Board at its regularly scheduled meeting on May 21, 1981, which included the Ad Hoc Indigent Health Care Committee, confirmation of the initial appointment of the committee was moot and no action was required.

#### **Correspondence**

Pima County Medical Society letter dated 3/23/81 re: county/state unified membership. Received.

#### **Other Business**

##### **1982 Annual Meeting**

The Board was informed that, due to the House of Delegates' action on May 21, 1981 which discontinued the holding of a scientific program in conjunction with the annual meeting of the House of Delegates beginning with the year 1982, and, in an effort to make necessary arrangements to change the commitment previously given to The Pointe Resort for the dates of May 26-31, 1982, it was necessary to select two of those five days for the holding of the 1982 Annual Meeting of the House of Delegates.

*It was moved and carried that the 1982 Annual Meeting of ArMA'S House of Delegates would be held on Friday, May 28, and Saturday, May 29, 1982, and Bruce E. Robinson was directed to confirm with The Pointe Resort for those dates only and to release the space previously committed for May 26, 27 and 29, 1982.*

#### **Position Paper**

##### **The Arizona Medical Association, Inc. Re: Chiropractic**

The State of Arizona has enacted legislation for numerous practitioners of the healing arts. In only two instances, the practice "unlimited" in scope, allopathic and osteopathic physicians. In all other instances those who practice the healing arts have been provide



efinite limits when compared to the illopathic and osteopathic legislation. ny proposed legislation introduced by hiropractors that would increase their cope of practice must be accompanied y proof of additional education and raining and demonstration of ompetence, equal to that of unlimited ractitioners in those areas to be de- mited. That is, in order for limited- cense practitioners to become less mited by law, it would be necessary at their education be broadened by ppropriate unlimited clinical nstruction and experience.

The appropriate interpretation of any laboratory finding or x-ray examination s it applies to a specific patient's illness an only be done by those with nlimited clinical education and xperience. Interpretation by a ractitioner trained for a limited license ould represent a far greater health azard than no interpretation at all. herefore, mandating access by limited- cense practitioners to x-ray and aboratory reports might unnecessarily ncrease the risk to the patient.

The ArMA position is that the illopathic or osteopathic physician is ee to consult with, or accept patients om ANY limited-license practitioner of ne healing arts. It is our desire to reserve this voluntary relationship in ne best interests of our patients.

#### **Position Paper**

**The Arizona Medical Association, Inc.  
Re: Naturopathy:**

The current statute concerning naturopathy defines naturopathy as ollows: "all forms of physiotherapy. . . means a system of treating bnormalities of the human mind and ody by the use of drugless and non- urgical methods, including the use of hysician electrical, hygenic and anitary measures indident thereto."

Legislation introduced by naturo- aths would redefine the scope of the ractice of naturopathy to apparently uthorize the unlimited practice of edicine, except for surgery. In effect, his would remove all previous limits mposed on the practice of naturopathy.

It is the position of the Arizona Medical Association that any legislation ntroduced by naturopaths to extend the cope must be accompanied by proof of dditional education and training and emonstration of competence, equal to at of unlimited practitioners in those reas to be de-limited.

#### **Position Paper**

**The Arizona Medical Association, Inc.  
Re: Nurse Practitioner:**

The nurse practitioner should be considered a "physician extender." That this is the intent of the Arizona Legislature appears to be borne out by enactment of legislation in Arizona designating the Joint Board of Medical Examiners and Osteopathic Examiners in Medicine and Surgery, to work in collaboration with the State Board of Nursing to define the role of the nurse practitioner by development of rules and regulations under which the nurse practitioner shall perform.

A "physician extender" is defined as: ". . . a specially trained and licensed (when necessary) or otherwise credentialled individual who performs tasks which might otherwise be performed by physicians themselves . . ." \*which expands the capability of the physician to perform more efficiently. In whatever way the extended role is manifest, the connection with an unlimited-license physician should always remain. The nurse has not been extended in the licensed practice of nursing, but rather has received additional training to allow entrance into a traditional, but limited, physician role. For example, nurse practioners may take detailed medical histories, perform physical examinations, order appropriate laboratory studies, evaluate data to plan a treatment program, perform minor surgery, prescribe, and regulate or adjust medication and treatment, to name a few. The rules and regulations that establish those limits as now constituted, mandate that these extended roles have guidance and direction under joint leadership. (Joint Board and Board of Nursing) with input from both nurses and physicians. It is the position of ArMA that it is essential for this joint relationship to be maintained.

In summary, most services performed by nurse practitioners are physician services and as such should be defined with input from both nurses and physicians. It is recognized that nurses are licensed health professionals and are independently lincensed to provide nursing care, and in that role, the Board of Nursing does, and should have, complete jurisdiction. It is possible that a nurse practitioner may work geographically independent of a physician; however, the guidelines establishing the duties of the individual nurse practitioner must be established under the joint boards as described.

*"A 'Discursive Dictionary of Health Care,' prepared for use by committees of the U. S. House of Representatives.*

#### **Postion Paper**

**The Arizona Medical Association, Inc.  
RE: Podiatry:**

It is the position of the Arizona State Medical Association that the inclusion of qualified podiatrists as associate members of hospital medical staffs be encouraged by adoption of appropriate bylaw changes by hospital medical staffs such as those outlined by the American Medical Association \*(see attached.) Such bylaws amemdments to include podiatrists as associate members of the medical staff should define their qualifications, numbers and scope of practice, and should be developed and written jointly by podiatrists and physicians.

The Arizona Medical Association would not be supportive of special statutory treatment for podiatrists or any other providers of health care that would require hospitals to admit specific lincensed practitioners of any of the healing arts as members of hospital medical staffs.

#### **X.Factors to be Considered in Granting Hospital Privileges to Qualified Podlatrists**

**(Reference Committee D, page 287)**

#### **House Action: Filed**

The American Medical Association recognizes the right of qualified limited practitioners, such as podiatrists, and unlimited practitioners, such as doctors of medicine and osteopathy, to seek opportunities to utilize their knowledge and skills in hospitals and other health care facilities. The type of privileges or membership available should be spelled out in the hospital medical staff bylaws in accordance with the applicable state laws and regulations.

Qualified podiatrists appropriately may be granted practice privileges within the scope of their competencies. The delineation of clinical privileges should be commensurate with education, training, experience, personal character and capability of the individual applicant. The hospital medical staff should establish a system for evaluating individual applicants that is objective, impartial and fair; that is broad enough to recognize professional excellence and limited enough to safeguard patients. Provisional or probationary privileges are recommended for all hospital appointees for the first year or an appropriate period as provided in the hospital medical staff bylaws.

The Liaison Committee on Podiatry of the American Medical Association Board of Trustees was reconstituted in 1975. During 1976 and 1977, members of the Liaison Committee visited three of the five existing colleges of podiatry and



a sampling of podiatry residency programs in California, Illinois and Pennsylvania.

Upgraded student selection and admission criteria, strengthened curricula in the basic science and clinical years, and one, two and three year postgraduate residency programs have marked the improvements in the quality of podiatric educational programs following publication of the Selden Report in 1960. The visits to the schools and residency programs confirmed the fact that an increasing number of graduates are enrolling in residency programs. Because of the unevenness of opportunities for supervised clinical experience in residency training, however, hospital medical staffs are advised to evaluate the credentials of each podiatrist who applies for privileges and to make recommendations on the granting of practice privileges in accordance with the individual's training, experience and demonstrated competence and judgment.

As in other fields, there are external factors that can be helpful in evaluation of the competence of individual podiatrists. Graduation from an accredited college of podiatric medicine, successful completion of an approved residency program, documentation of the procedures performed while in training, membership in the American College of Foot Surgeons, certification by the American Board of Podiatric Surgery, state licensure, and documentation as to good character and ethical practice are examples of such factors. A chart of the state statutory and regulatory provisions relating to the granting of hospital practice privileges to podiatrists was compiled by the Office of the General Counsel and distributed to the House of Delegates because of the importance of these provisions to hospital medical staffs considering applications from podiatrists for privileges.

In the final analysis, operating room observation, record review, tissue review and medical care evaluation studies remain the foundation of evaluation for practice privileges for podiatrists, as well as for physicians and other independent practitioners providing professional services in hospitals. The evaluation of professional competency and performance should be initiated by the department in which privileges are granted with recommendations as to the scope of privileges forwarded to the credentials and other appropriate committees in accordance with the hospital medical staff bylaws.

*Board of Trustees Report X-A-77*

## PHYSICIAN REHABILITATION COMMITTEE

The meeting of the Physician Rehabilitation Committee of the Arizona Medical Association, Inc., held at Pointe of View - Quad B, The Pointe Resort, Phoenix, Arizona, on Wednesday, May 20, 1981, convened at 6:12 p.m., Thomas E. Bittker, M.D., presiding.

### Introduction of New Members

Dr. Bittker introduced Hugh W. Randel, M.D., as a new member to the Physician Rehabilitation Committee.

### Physician Suicide Project

Dr. Scheiber briefed the committee on the physician suicide project. Ideas that were voiced as to the problems and how to deal with them are:

a) Interview the surviving spouse of physician to get as much data about the physician before death;

b) Provide services to the spouse, and;

c) Accumulate as much data as possible.

There are five states that have a program set up at the present time. They are: Michigan, Pennsylvania, Oregon, California, and Arizona. The question was asked as to how the committee can help. A liaison with auxiliary will be extremely helpful.

Information for point of contact in reference to alcoholism will be republished in Medical Memos. We will also try to get the information published in the *Round-up*. The information is as follows:

**National Council on Alcoholism**  
**1821 East Ocotillo**  
**Meets every Sunday evening at 7:30 p.m.**  
**Auxiliary Workshop**

The committee agreed to support the Auxiliary with this workshop. Let the Auxiliary come forth with their needs and stand ready as facilitators. If they need areas of expertise, the point of contact to receive assistance will be Dr. Bittker, Dr. Kurtz, or Mr. Robinson.

### Recovering Physicians

Dr. Young briefed the committee on the Recovering Physician Groups and stated that the program was running along smoothly.

### Philosophy of Treatment of Alcoholism in Physicians

The statement of Philosophy of Treatment of Alcoholism in Physicians was adopted by the Board of Directors on January 10, 1981.

### Other Business

#### Film - "Our Brothers' Keeper"

A short version of "Our Brothers' Keeper" was shown at the meeting. This particular film had a great impact on the committee. The committee discussed the possibility of obtaining the film to keep at the ArMA headquarters offices

to be used when necessary. This film may serve as a training document or as an educational resource at various levels. This would be a good "pilot." Send a recommendation to auxiliary to use the film as a kick-off, incorporating availability of film to the President of the Auxiliary.

*It was moved and carried to inquire as to the purchase of the film "Our Brothers' Keeper", the 35 minute version, to be retained permanently in the ArMA Headquarters Offices, for use when appropriate.*

*It was also moved and carried to write a letter to the President of the Auxiliary informing her of the film's availability at the ArMA headquarters offices.*

*It was also moved and carried to have someone available from this committee each time the film is shown at different groups to discuss the film and answer questions that may arise.*

Dr. Bittker indicated he would like to get a response from the committee as to who would be available to attend the different meetings when the film is shown and therefor suggested that a questionnaire be filled out by each member and returned to ArMA headquarters offices prior to the next meeting which will be held sometime in the fall.

### Name Change

Dr. Bittker informed the committee that the Board of Directors in meeting held January 10, 1981, adopted the recommendation to change the name of this committee from "Physician Rehabilitation Committee" to "Physician's Health Committee," and the House of Delegates is to confirm the change later this week.

### Model Insurance Policy

Dr. Bittker informed the committee that the model insurance policy has been accepted and adopted by the Board of Directors during meeting held March 21, 1981.

## BOARD OF DIRECTORS

The meeting of the Board of Directors of the Arizona Medical Association, Inc. held in Pointes of View 'C' and 'D' of the Pointe of View restaurant at The Pointe Resort, 7677 N. 16th Street, Phoenix, Arizona, on Thursday, May 21, 1981, a quorum being present, convened at 12:05 p.m., Clyde W. Kurtz, M.D., President and Chairman, presiding.

### Committee Confirmations

It was moved and carried to confirm the following committee appointments:

*Note: The single asterisk indicates reappointment. The double asterisk indicates new appointments. Those without asterisks are previous year*



appointments whose terms are still in effect. They are listed here for information only.

### Articles of Incorporation and Bylaws Committee

|                             |         |
|-----------------------------|---------|
| *Charles E. Henderson, M.D. | 1981-84 |
| Chairman                    | 1981-82 |
| Earl J. Baker, M.D.         | 1981-82 |
| Secretary                   |         |
| *Richard L. Collins, M.D.   | 1981-82 |
| *Philip E. Dew, M.D.        | 1981-83 |
| *Paul B. Jarrett, M.D.      | 1981-84 |
| *John K. Kerr, M.D.         | 1981-82 |
| Clyde W. Kurtz, M.D.        | 1981-82 |
| President                   |         |
| John E. Oakley, M.D.        | 1981-82 |
| President-Elect             |         |
| *W. David Rummel, M.D.      | 1981-83 |
| *Edward Sattenspiel, M.D.   | 1981-84 |
| *William C. Scott, M.D.     | 1981-82 |
| *Neil O. Ward, M.D.         | 1981-83 |
| *Willard F. Worthen, M.D.   | 1981-84 |

### Benevolent and Loan Fund Committee

|                               |         |
|-------------------------------|---------|
| *Arthur V. Dudley, Jr., M.D.  | 1979-82 |
| Chairman                      | 1981-82 |
| Earl J. Baker, M.D.           | 1981-82 |
| Secretary                     |         |
| *William L. Bunting, M.D.     | 1981-84 |
| Clifford D. DeBenedetti, M.D. | 1981-82 |
| Treasurer-Specified           |         |
| Daniel C. DeBoer, M.D.        | 1979-82 |
| Andrew M. Goldner, Ph.D.      | 1979-82 |
| Clyde W. Kurtz, M.D.          | 1981-82 |
| President                     |         |
| *George S. Naifeh, Jr., M.D.  | 1981-84 |
| John E. Oakley, M.D.          | 1981-82 |
| President-Elect               |         |
| Cecil C. Vaughn, Jr., M.D.    | 1979-82 |
| *Richard D. Zonis, M.D.       | 1981-84 |

### Finance Committee

|                               |         |
|-------------------------------|---------|
| Clifford D. DeBenedetti, M.D. | 1981-82 |
| Chairman                      |         |
| Earl J. Baker, M.D.           | 1981-82 |
| Secretary                     |         |
| *L. Philip Carter, M.D.       | 1981-84 |
| Jerry W. Haggard, M.D.        | 1980-83 |
| John W. Kennedy, M.D.         | 1980-83 |
| Clyde W. Kurtz, M.D.          | 1981-82 |
| President                     |         |
| *Robert F. Lorenzen, M.D.     | 1981-84 |
| Christopher T. Maloney, M.D.  | 1980-83 |
| Theodore L. Mobley, M.D.      | 1979-82 |
| John E. Oakley, M.D.          | 1981-82 |
| President-Elect               |         |
| John B. Sawyer, M.D.          | 1980-83 |
| Seymour I. Shapiro, M.D.      | 1980-83 |
| *Walter K. Sosey, M.D.        | 1981-84 |
| *Harold C. Tretbar, M.D.      | 1981-84 |

### Governmental Services Committee

|                        |         |
|------------------------|---------|
| , Chairman             | 1981-82 |
|                        | 1981-84 |
| Earl J. Baker, M.D.    | 1981-82 |
| Secretary              |         |
| John A. Davis, M.D.    | 1979-82 |
| Louis C. Kossuth, M.D. | 1980-83 |
| Clyde W. Kurtz, M.D.   | 1981-82 |
| President              |         |
| *Donald R. Miles, M.D. | 1981-84 |

|                            |         |
|----------------------------|---------|
| John E. Oakley, M.D.       | 1981-82 |
| President-Elect            |         |
| **Leonard F. Peltier, M.D. | 1981-84 |
| Wallace A. Reed, M.D.      | 1979-82 |
| Robert St. John, M.D.      | 1979-82 |
| Bruce H. Shelton, M.D.     | 1980-83 |
| **G. S. Woodard, Jr., M.D. | 1981-84 |
| Del Worthington            | 1979-82 |
| Medical Student            |         |

### Grievance Committee

|                             |         |
|-----------------------------|---------|
| John T. Clymer, M.D.        | 1981-82 |
| Chairman                    |         |
| Earl J. Baker, M.D.         | 1981-82 |
| Secretary                   |         |
| *Philip E. Dew, M.D.        | 1981-84 |
| *Morton H. Dubnow, M.D.     | 1981-84 |
| *Arnold H. Dysterheft, M.D. | 1981-84 |
| **Robert L. Fox, M.D.       | 1981-84 |
| David E. Glow, M.D.         | 1980-83 |
| *John B. Jamison, M.D.      | 1981-84 |
| Clyde W. Kurtz, M.D.        | 1981-82 |
| President                   |         |
| James N. Lane, M.D.         | 1980-83 |
| Richard T. McDonald, M.D.   | 1979-82 |
| John E. Oakley, M.D.        | 1981-82 |
| President-Elect             |         |
| Albert J. Ochsner, M.D.     | 1980-83 |
| **Stanley R. Shorb, M.D.    | 1981-84 |

### Health Manpower Committee

|                            |         |
|----------------------------|---------|
| *Laurence M. Linkner, M.D. | 1979-82 |
| Chairman                   | 1981-82 |
| Earl J. Baker, M.D.        | 1981-82 |
| Secretary                  |         |
| Bruce N. Curtis, M.D.      | 1980-83 |
| **Marilyn J. Heins, M.D.   | 1981-84 |
| Clyde W. Kurtz, M.D.       | 1981-82 |
| President                  |         |
| **F. C. Lepperd, Jr., M.D. | 1981-84 |
| C. T. Maloney, M.D.        | 1980-83 |
| Marcus M. Marble, M.D.     | 1979-82 |
| Robert R. Maxwell, M.D.    | 1980-83 |
| **Alex Newman, M.D.        | 1981-84 |
| John E. Oakley, M.D.       | 1981-82 |
| President-Elect            |         |
| Stuart L. Posner, M.D.     | 1980-83 |
| Sara S. Reynolds, M.D.     | 1980-83 |
| Melvin I. Roth, M.D.       | 1980-83 |
| *George B. Rowland, M.D.   | 1981-84 |
| *Ronald P. Spark, M.D.     | 1981-84 |

### History and Obituaries Committee

|                         |         |
|-------------------------|---------|
| Marshall B. Block, M.D. | 1981-82 |
| Chairman                |         |
| Earl J. Baker, M.D.     | 1981-82 |
| Secretary               |         |
| *John R. Harlan, M.D.   | 1981-84 |
| John W. Kennedy, M.D.   | 1980-81 |
| Clyde W. Kurtz, M.D.    | 1981-82 |
| President               |         |
| John E. Oakley, M.D.    | 1981-82 |
| President-Elect         |         |
| W. David Rummel, M.D.   | 1980-83 |
| William C. Weese, M.D.  | 1980-83 |

### Legislative Committee

|                         |         |
|-------------------------|---------|
| *Richard O. Flynn, M.D. | 1981-84 |
| Chairman                | 1981-82 |
| Earl J. Baker, M.D.     | 1981-82 |
| Secretary               |         |
| Wayne E. Beck, M.D.     | 1979-82 |

|                            |         |
|----------------------------|---------|
| W. S. Chisholm, Jr., M.D.  | 1979-82 |
| **Thomas I. Crawford, M.D. | 1981-84 |
| William E. Crisp, M.D.     | 1980-83 |
| Robert T. Daehler, M.D.    | 1980-83 |
| Richard Dale, M.D.         | 1980-83 |
| Richard Darby, D.O.        | 1980-83 |
| *Kenneth A. Dregseth, M.D. | 1981-84 |
| Lawrence Green, M.D.       | 1980-83 |
| Scott Hitt                 | 1979-82 |
| Medical Student            |         |
| **Louis J. Kettel, M.D.    | 1981-84 |
| **William E. Kuchar, M.D.  | 1981-84 |
| Clyde W. Kurtz, M.D.       | 1981-82 |
| President                  |         |
| *George Lastnick, M.D.     | 1981-84 |
| Maureen Mangotich          | 1979-82 |
| Medical Student            |         |
| *Richard McGill, D.O.      | 1981-84 |
| Joseph B. McNally, M.D.    | 1979-82 |
| *Thomas F. Moore, M.D.     | 1981-84 |
| John E. Oakley, M.D.       | 1981-82 |
| President-Elect            |         |
| *David A. Ogden, M.D.      | 1981-84 |
| R. Michael O'Harra, M.D.   | 1979-82 |
| Kent L. Pomeroy, M.D.      | 1980-83 |
| Frederic L. Ruskin, M.D.   | 1980-83 |
| Robert D. Sanford, M.D.    | 1979-82 |
| Edward Sattenspiel, M.D.   | 1980-83 |
| *James L. Schamadan, M.D.  | 1981-84 |
| *Burt S. Strug, M.D.       | 1981-84 |
| Glen L. Sublette, M.D.     | 1980-83 |
| William A. Susong, M.D.    | 1979-82 |
| *John W. Vosskuhler, M.D.  | 1981-84 |
| **Dennis E. Weiland, M.D.  | 1981-84 |

### Maternal and Child Health Care Committee

|                             |         |
|-----------------------------|---------|
| *William C. Scott, M.D.     | 1979-82 |
| Chairman                    | 1981-82 |
| Earl J. Baker, M.D.         | 1981-82 |
| Secretary                   |         |
| *Frederic W. Baum, M.D.     | 1981-84 |
| James F. Blute, III, M.D.   | 1979-82 |
| Owen L. Cranmer, M.D.       | 1980-83 |
| William J.R. Daily, M.D.    | 1980-83 |
| *Jack H. Demlow, M.D.       | 1981-84 |
| William Droegemueller, M.D. | 1979-82 |
| G. Wayne Figgs, M.D.        | 1980-83 |
| Raymond J. Jennett, M.D.    | 1980-83 |
| John V. Kelly, M.D.         | 1980-83 |
| Clyde W. Kurtz, M.D.        | 1980-82 |
| President                   |         |
| *Walter K. Kippard, M.D.    | 1981-84 |
| H. Belton P. Meyer, M.D.    | 1979-82 |
| Sister Alice Montgomery     | 1979-82 |
| William J. Moore, M.D.      | 1979-82 |
| John E. Oakley, M.D.        | 1981-82 |
| President-Elect             |         |
| *William G. Payne, M.D.     | 1981-84 |
| *Hermann S. Rhu, M.D.       | 1981-84 |
| George H. Schade, M.D.      | 1980-83 |
| Lewis S. Shenker, M.D.      | 1979-82 |
| William A. Susong, M.D.     | 1979-82 |
| Paul A. Whitmore, D.O.      | 1979-82 |
| Jack A. Wilson, M.D.        | 1979-82 |
| Herbert L. Winograd, M.D.   | 1980-83 |
| Del Worthington             | 1979-82 |
| Medical Student             |         |
| **John R. Young, M.D.       | 1981-84 |

### Medical Economics Committee

|                               |         |
|-------------------------------|---------|
| **Theodore L. Mobley, M.D.    | 1980-83 |
| Chairman                      | 1981-82 |
| Salvatore D. Abate, M.D.      | 1979-82 |
| Earl J. Baker, M.D.           | 1981-82 |
| Secretary                     |         |
| Donald Buckley                | 1979-82 |
| Medical Student               |         |
| James R. Callison, M.D.       | 1980-83 |
| William G. Chaffee, M.D.      | 1980-83 |
| **Sam C. Colachis, Jr., M.D.  | 1981-84 |
| **Richard H. Daley, M.D.      | 1981-84 |
| Charles F. Dalton, M.D.       | 1979-82 |
| Andrew Epstein                | 1979-82 |
| Medical Student               |         |
| James L. Frey, M.D.           | 1979-82 |
| **Thomas W. Glenn, M.D.       | 1981-84 |
| **Edwin G. Goldstein, M.D.    | 1981-84 |
| David B. Gurland, M.D.        | 1980-83 |
| Lucy S. Hernried, M.D.        | 1980-83 |
| *John F. Kahle, M.D.          | 1981-84 |
| Clyde W. Kurtz, M.D.          | 1981-82 |
| President                     |         |
| *Laurence M. Linkner, M.D.    | 1981-84 |
| **Bruce A. Mallin, M.D.       | 1981-84 |
| Sheldon Marks                 | 1979-82 |
| Medical Student               |         |
| John E. Oakley, M.D.          | 1981-82 |
| President-Elect               |         |
| **Hugh C. Thompson, III, M.D. | 1981-84 |
| **John A. Wilson, M.D.        | 1981-84 |
| William R. Womack, M.D.       | 1979-82 |
| *R. Jack M. Zeluff, M.D.      | 1981-84 |

### Medical Education Committee

|                             |         |
|-----------------------------|---------|
| **Charles A. Trahern, M.D.  | 1980-83 |
| Chairman                    | 1981-82 |
| **Robert M. Anderson, M.D.  | 1981-84 |
| Earl J. Baker, M.D.         | 1981-82 |
| Secretary                   |         |
| **Robert M. Crowell, M.D.   | 1981-84 |
| Kenneth A. Dregseth, M.D.   | 1979-82 |
| Palmer C. Evans, M.D.       | 1979-82 |
| *Samuel Goldfein, M.D.      | 1981-84 |
| *Stuart M. Gould, Jr., M.D. | 1981-84 |
| Harry W. Hale, Jr., M.D.    | 1979-82 |
| Robert E. Hastings, M.D.    | 1979-82 |
| H. Peter Hernried, M.D.     | 1979-82 |
| Clyde W. Kurtz, M.D.        | 1981-82 |
| President                   |         |
| Jack M. Layton, M.D.        | 1980-83 |
| Donald J. Logue             | 1980-83 |
| Administrator               |         |
| **Jasper L. McPhail, M.D.   | 1981-84 |
| James R. Mouer, M.D.        | 1979-82 |
| Herbert N. Munhall, M.D.    | 1979-82 |
| Alex Newman, M.D.           | 1979-82 |
| John E. Oakley, M.D.        | 1981-82 |
| President-Elect             |         |
| Eric G. Ramsay, M.D.        | 1979-82 |
| Sharon Sandell              | 1979-82 |
| Medical Student             |         |
| *Julius Schwimmer, M.D.     | 1981-84 |
| Arnold L. Serbin, M.D.      | 1979-82 |
| John J. Standifer, M.D.     | 1979-82 |
| *Lawrence Z. Stern, M.D.    | 1981-84 |
| *Ashton B. Talyor, M.D.     | 1981-84 |
| Bryan R. Updegraff, M.D.    | 1980-83 |
| **Ben A. Vanderwerf, M.D.   | 1981-84 |
| Thomas E. Vorpahl, M.D.     | 1980-83 |

|                                |         |
|--------------------------------|---------|
| *Albert G. Wanger, M.D.        | 1981-84 |
| *Walter S. Williams, M.D.      | 1981-84 |
| **George S. Woodard, Jr., M.D. | 1981-84 |

### Occupational Health Committee

|                           |         |
|---------------------------|---------|
| **Willis A. Warner, M.D.  | 1981-84 |
| Chairman                  | 1981-82 |
| **Herbert K. Abrams, M.D. | 1981-84 |
| Earl J. Baker, M.D.       | 1981-82 |
| Secretary                 |         |
| *Floyd K. Berk, M.D.      | 1981-84 |
| *Earl M. Best, M.D.       | 1981-84 |
| **Robert E. Eckardt, M.D. | 1981-84 |
| Joseph M. Hughes, M.D.    | 1980-83 |
| **Norman A. James, M.D.   | 1981-84 |
| Clyde W. Kurtz, M.D.      | 1981-82 |
| President                 |         |
| Robert L. Levitin, M.D.   | 1979-82 |
| John E. Oakley, M.D.      | 1981-82 |
| President-Elect           |         |
| **Kent L. Pomeroy, M.D.   | 1981-84 |
| James L. Schamadan, M.D.  | 1979-82 |

### Physician's Health Committee

|                             |         |
|-----------------------------|---------|
| *Thomas E. Bittker, M.D.    | 1980-83 |
| Chairman                    | 1981-82 |
| Earl J. Baker, M.D.         | 1981-82 |
| Secretary                   |         |
| *Paul B. Borgeesen, M.D.    | 1981-84 |
| Harrison G. Butler, M.D.    | 1979-82 |
| Everett W. Czerny, M.D.     | 1979-82 |
| Thomas W. Edwards, M.D.     | 1980-83 |
| Dean L. Gerstenberger, M.D. | 1981-84 |
| Howard S. Gray, M.D.        | 1980-83 |
| Howard W. Kimball, M.D.     | 1980-83 |
| Clyde W. Kurtz, M.D.        | 1981-82 |
| President                   |         |
| B. Ross Landess, M.D.       | 1980-83 |
| *Laurence M. Linkner, M.D.  | 1981-84 |
| Edward Meshorer, M.D.       | 1980-83 |
| John E. Oakley, M.D.        | 1981-82 |
| President-Elect             |         |
| Patrick T. Phalen, M.D.     | 1980-83 |
| **Hugh W. Randel, M.D.      | 1981-84 |
| Judith E. Reid, M.D.        | 1980-83 |
| Sara S. Reynolds, M.D.      | 1980-83 |
| Stephen C. Scheiber, M.D.   | 1979-82 |
| Walter B. Tomlinson, M.D.   | 1979-82 |
| Mark A. Wellek, M.D.        | 1980-83 |
| Lincoln H. Westman, M.D.    | 1980-83 |
| Louis E. Young, M.D.        | 1980-83 |
| Victor J. Zannis, M.D.      | 1980-83 |

### Professional Committee

|                             |         |
|-----------------------------|---------|
| *Joseph W. Hanss, Jr., M.D. | 1981-84 |
| Chairman                    | 1981-82 |
| Earl J. Baker, M.D.         | 1981-82 |
| Secretary                   |         |
| **William E. Cain, M.D.     | 1981-84 |
| Murray M. DeArmond, M.D.    | 1980-83 |
| **John C. Flannery, M.D.    | 1981-84 |
| *Thomas P. Foerster, M.D.   | 1981-84 |
| Robert L. Hagan, M.D.       | 1980-83 |
| **Barry A. Kriegsfeld, M.D. | 1981-84 |
| Donald B. Kunkel, M.D.      | 1979-82 |
| Clyde W. Kurtz, M.D.        | 1981-82 |
| President                   |         |
| James G. Lawson, M.D.       | 1979-82 |
| Sheldon Marks               | 1979-82 |
| Medical Student             |         |

|                          |         |
|--------------------------|---------|
| *Warren L. Niccum, M.D.  | 1981-84 |
| John E. Oakley, M.D.     | 1981-82 |
| President-Elect          |         |
| Tom D. Powell, M.D.      | 1980-83 |
| *Charles W. Pullen, M.D. | 1981-84 |
| Howard J. Reuben, M.D.   | 1980-83 |
| James B. Scott, M.D.     | 1979-82 |
| *Willim J. Thomas, M.D.  | 1981-84 |
| Del Worthington          | 1979-82 |
| Medical Student          |         |

### Public Relations Committee

|                             |         |
|-----------------------------|---------|
| *John T. Clymer, M.D.       | 1980-83 |
| Chairman                    | 1981-82 |
| Earl J. Baker, M.D.         | 1981-82 |
| Secretary                   |         |
| Marshall B. Block, M.D.     | 1980-83 |
| **George F. Brown, M.D.     | 1981-84 |
| *Ronald L. Christ, M.D.     | 1981-84 |
| Mrs. John T. Clymer         | 1980-83 |
| (ArMA Auxiliary)            |         |
| *Julian DeVries             | 1981-84 |
| Medical Editor              |         |
| Ira B. Ehrlich, M.D.        | 1979-82 |
| **Edwin G. Goldstein, M.D.  | 1981-84 |
| *Alan L. Gordon, M.D.       | 1981-84 |
| Scott Hitt, Medical Student | 1979-82 |
| William E. Ingram, M.D.     | 1980-83 |
| Clyde W. Kurtz, M.D.        | 1981-82 |
| President                   |         |
| *Keith E. McReynolds, M.D.  | 1981-84 |
| John E. Oakley, M.D.        | 1981-82 |
| President-Elect             |         |
| **Ronald P. Spark, M.D.     | 1981-84 |
| Stephen R. Stein, M.D.      | 1979-82 |
| Diana Stockton              | 1979-82 |
| Medical Student             |         |

### Publishing Committee

|                           |         |
|---------------------------|---------|
| Marshall B. Block, M.D.   | 1981-82 |
| Chairman                  |         |
| Earl J. Baker, M.D.       | 1981-82 |
| Secretary                 |         |
| *Burnell R. Brown, M.D.   | 1981-84 |
| **George E. Burdick, M.D. | 1981-84 |
| **Kenneth B. Desser, M.D. | 1981-84 |
| Benjamin K. Harris, M.D.  | 1979-82 |
| Clyde W. Kurtz, M.D.      | 1981-82 |
| President                 |         |
| Jonathan M. Levy, M.D.    | 1980-83 |
| *William B. McGrath, M.D. | 1981-84 |
| John E. Oakley, M.D.      | 1981-82 |
| President-Elect           |         |
| **Jay W. Smith, M.D.      | 1981-84 |
| **Sidney C. Werner, M.D.  | 1981-84 |

### Scientific Assembly Committee

|                              |         |
|------------------------------|---------|
| *Stuart I. Holtzman, M.D.    | 1979-82 |
| Chairman                     | 1981-82 |
| Suresh C. Anand, M.D.        | 1979-82 |
| Earl J. Baker, M.D.          | 1981-82 |
| Secretary                    |         |
| Floyd K. Berk, M.D.          | 1980-83 |
| George E. Burdick, M.D.      | 1979-82 |
| **James M. Byers, III, M.D.  | 1981-84 |
| W. S. Chisholm, Jr., M.D.    | 1979-82 |
| Joel G. Cohen, M.D.          | 1980-83 |
| Boyden L. Crouch, M.D.       | 1979-82 |
| **George W. Drach, M.D.      | 1981-84 |
| *Timothy R. Harrington, M.D. | 1981-84 |
| *Thomas F. Hartley, M.D.     | 1981-84 |



|                            |         |
|----------------------------|---------|
| James M. Hurley, M.D.      | 1980-83 |
| Clyde W. Kurtz, M.D.       | 1981-82 |
| President                  |         |
| Philip Levy, M.D.          | 1980-83 |
| Luiz S. Lisboa, M.D.       | 1980-83 |
| Peter Mao, M.D.            | 1979-82 |
| J. Daniel Morris, M.D.     | 1979-82 |
| M. Herbert Nathan, M.D.    | 1980-83 |
| William S. Nevin, M.D.     | 1981-84 |
| Alex Newman, M.D.          | 1981-84 |
| John E. Oakley, M.D.       | 1981-82 |
| President-Elect            |         |
| Neopito L. Robles, M.D.    | 1981-82 |
| Vice-President-Specified   |         |
| Marvin C. Schneider, M.D.  | 1979-82 |
| Richard A. Silver, M.D.    | 1979-82 |
| Donald P. Speer, M.D.      | 1981-84 |
| Lawrence Z. Stern, M.D.    | 1980-83 |
| Luis S. Tan, M.D.          | 1980-83 |
| Jerome H. Targovnick, M.D. | 1981-84 |
| Wilber C. Voss, M.D.       | 1980-83 |
| Donald J. Ziehm, M.D.      | 1980-83 |

#### **ArMPAC Board of Directors Term - 1981-82**

|                                    |
|------------------------------------|
| Daniel T. Meredith, M.D., Chairman |
| *Lloyd Anderson, M.D.              |
| Earl J. Baker, M.D., Secretary     |
| *Mrs. L. Philip Carter             |
| *Kent E. Durfee, M.D.              |
| *Mrs. Ronald Goodsite              |
| *Robert L. Hagan, M.D.             |
| Clyde W. Kurtz, M.D., President    |
| *Don W. Longfellow, M.D.           |
| *Thomas F. Moore, M.D.             |
| John E. Oakley, M.D., Pres.-Elect  |
| *Mrs. Joseph H. Reno               |
| *John W. Vosskuhler, M.D.          |
| *Mrs. Hubert Wuesthoff             |

#### **Awards Committee, Ad Hoc Term 1981-82**

|                                    |
|------------------------------------|
| *Richard L. Dexter, M.D., Chairman |
| Earl J. Baker, M.D., Secretary     |
| *William E. Crisp, M.D.            |
| *John F. Kahle, M.D.               |
| Clyde W. Kurtz, M.D., President    |
| John F. Oakley, M.D., Pres.—Elect  |

#### **Indigent Health Care Committee Ad Hoc, Term-1981-82**

|                                   |
|-----------------------------------|
| *MacDonald Wood, M.D., Chairman   |
| Earl J. Baker, M.D., Secretary    |
| **Edward R. Curtis, M.D.          |
| **Suzanne E. Dandoy, M.D.         |
| Clyde W. Kurtz, M.D., President   |
| **Joseph B. McNally, M.D.         |
| John E. Oakley, M.D., Pres.-Elect |
| **Wallace A. Reed, M.D.           |
| **William C. Scott, M.D.          |
| **Walter K. Sosey, M.D.           |
| **Neil O. Ward, M.D.              |
| **Leonard A. Wright, M.D.         |
| **Richard D. Zonis, M.D.          |

#### **Long Range Planning Committee Ad Hoc, Term 1981-82**

|                                    |
|------------------------------------|
| *Neopito L. Robles, M.D., Chairman |
| Earl J. Baker, M.D., Secretary     |

|                                   |
|-----------------------------------|
| *Suzanne E. Dandoy, M.D.          |
| **Richard L. Dexter, M.D.         |
| **Arnold H. Dysterheft, M.D.      |
| **Alan L. Gordon, M.D.            |
| Clyde W. Kurtz, M.D., President   |
| **Laurance B. Nilsen, M.D.        |
| John E. Oakley, M.D., Pres.-Elect |
| **Wilfred M. Potter, M.D.         |
| *Frederick C. Scott, M.D.         |
| **Robert E.T. Stark, M.D.         |

#### **Malpractice Insurance Crisis Committee**

##### **Ad Hoc, Term 1981-82**

|                                     |
|-------------------------------------|
| *Edward Sattenspiel, M.D., Chairman |
| Earl J. Baker, M.D., Secretary      |
| *Lewis M. Brickler, D. O            |
| **Jack E. Brooks, M.D.              |
| **John C. Bull, Jr., M.D.           |
| **Richard L. Collins, M.D.          |
| *Richard O. Flynn, M.D.             |
| *Mark Gross, M.D.                   |
| *Mark Ivey, Jr., M.D.               |
| Clyde W. Kurtz, M.D., President     |
| *Paul T. Lenio, M.D.                |
| *Vernor F. Lovett, M.D.             |
| *Keith E. McReynolds, M.D.          |
| John E. Oakley, M.D., Pres.-Elect   |
| *Donald F. Schaller, M.D.           |
| **Robert V. Stephens, M.D.          |
| **Neil O. Ward, M.D.                |

#### **Other Business**

##### **Disbanded Committees**

It was noted by the Board that the following committees have been disbanded, Ad Hoc Crippled Children's Hospital Committee, Ad Hoc Committee on County/State Unified Membership, and Purchasing Committee - Western Physicians Purchasing Association.

#### **SCIENTIFIC ASSEMBLY COMMITTEE**

A special meeting of the Scientific Assembly Committee of the Arizona Medical Association, Inc. held in Room 2266 at The Pointe Resort, 7677 N. 16th Street, Phoenix, Arizona, on Saturday, May 23, 1981, convened at 12:26 p.m., Stuart I. Holtzman, M.D., Chairman, presiding.

##### **Resolution 5-81**

The Committee members were advised that the ArMA House of Delegates had favorably acted on Resolution 5-81 which discontinued the present scientific program format of the annual meeting effective with the 1982 meeting and that the Board of Directors had selected the dates of May 28 and 29, 1982 for the holding of the meetings of the House of Delegates.

##### **Future Format for Scientific Programs**

The committee discussed at great length the various possibilities available for providing of scientific programs to

ArMA members. However, due to the fact that planning of any depth would depend on whether or not specialty society involvement could be obtained in order that attendance could be increased. It was, therefore, the determination of the members that, once again, contact be made with the various state specialty societies as to the desirability and capability of coordinating such societies' meetings at the same time during the year, with a general format to be included which might be of interest to all physicians regardless of their specialty. Dr. Holtzman, as Chairman of the committee, was requested to select committee members to contact specific societies, directing them as to information being sought and indicating the committee's desire that as much information as possible be returned to the committee prior to its next scheduled meeting on July 18, 1981.

#### **AD HOC INDIGENT HEALTH CARE COMMITTEE**

The meeting of the Ad Hoc Indigent Health Care Committee of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Thursday, June 25, 1981, convened at 6:42 p.m., MacDonald Wood, M.D., Chairman, presiding.

##### **Review of Previous Meetings and Discussions**

The committee reviewed and discussed not only the previous meetings of the committee, but the invitation extended by Senator Usdane on June 16th that ArMA members participate in developing guidelines, should House Bill 2484 be funded and become law. Additionally, Edward Jacobson, counsel for the Association, reported to the committee on his recent meetings and discussions with Senator Usdane and his staff, providing to the members his comments on various aspects of the bill. It was the consensus of the membership that Mr. Jacobson, because of his expertise, as well as, his comprehension of the bill and the aims of this committee and the Arizona Medical Association regarding health care for the indigent, should continue to be ArMA's contact with the Senator and his staff in order that all parties might be kept fully informed on this matter.

##### **Meeting with AMA Legislative Staff**

Dr. Zonis and Kurtz reported to the committee on their recent meeting in Chicago with John Krichbaum and Shirley Rivers of the AMA legislative



staff, during which they again discussed the shortcomings of House Bill 2484 in meeting requirements for federal funding as well as the avenues available to the Association in developing alternative plans or assisting in bringing House Bill 2484 more into line with what the committee feels would be a more acceptable plan for quality care to the indigent of Arizona. The members were advised that the AMA legislative staff had been most helpful and had offered their assistance, which included travel to Arizona to meet with the committee. It was the consensus of the members that, because of the resources available to the AMA, the request would be extended to the legislative staff to meet with the committee in the near future.

#### Documentation

The committee again reviewed House Bill 2484, together with the recommendations of the Arizona Hospital Association, the recent Medicaid amendments proposed by the Reagan Administration, as well as news articles relating to Medicaid problems being faced by other states, and materials relating to various projects on health care which had previously been distributed to individual committee members. It was determined that those items which had been distributed for individual review only would be mailed in their entirety to the total membership for its review and use in future deliberations.

#### Objectives and Future Planning

After much discussion, it was determined that this committee's current aim must be to assist in improving House Bill 2484 to establish a program which will provide appropriate, accessible, affordable, and the best quality of care to the indigent. Additionally, the committee determined that the areas of the bill of greatest concern, requiring thought, consideration and input from this committee to the appropriate legislators prior to any final action on the bill, are as follows:

#### Ref. 11-291 - 41.820.05

1. Fragmentation of care - by not providing for over-65, mental health, long-term nursing, home health, etc., families divided, no continuity of care system as patients leave the state system and go back to the county system.

#### Ref. 41.820.7

2. Would prefer pluralistic approach - choice of several types of health care delivery systems - prepaid in some areas, freedom of choice available in others. Possibility of county hospital providing prepaid care?

#### Ref. 41.820.2

3. Concern over Department of Administration as overseer. Cost-

effective? No expertise in health care area; would have to develop this expertise in that department. Why not Department of Health Services? Also, increased cost due to four levels of operation - legislative, administrative, contracting agency, and provider.

#### Ref. 41.820.01B.8

4. Possible areas of abuse - undertreatment in order to keep costs within amount of capitation bid, and increased malpractice risk - by forcing rationing of care and undertreatment, bad result laid to decision not to do costly procedure could result in costly malpractice suit.

#### Ref. 41.820.02D

5. Lack of access to specialty care except through primary provider, resulting in higher costs due to possibly unnecessary doctor visits in some cases.

6. Need for development of different systems of delivery for rural and urban counties, and possibly even different systems for two urban counties.

#### Ref. 38.651

7. Concern over inclusion of state and county employees.

#### Ref. 41.820.02C

8. Co-payment - is a very low co-payment for all cost effective? Cost of collecting co-payment might exceed any possible benefit.

#### Ref. 41.820.01F

9. Concern over confidentiality of patient records.

It was decided that the next meeting of this committee would be held at 9:00 a.m. on Saturday, July 11, 1981, at which time all members should have reviewed the foregoing and come prepared to formulate final recommendations on each, which will then be presented as suggestions for inclusion in House Bill 2484 during a meeting with Senator Robert Usdane, Representative Burton Barr, Representative Carl Kunasek and staff members, Sandy Spellman and Don Isaacson.

Regarding such a meeting, it was agreed that Mr. Jacobson would, by inquiry, determine a convenient time for scheduling the same shortly after the July 11th meeting of the committee.

#### Other Business

News Release of the Medical Economics Company, Inc. dated June 16, 1981 Received.

## *Future Medical Meetings*

The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee of Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution or organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA Physician's Recognition Award.

## AUGUST

#### Interferon

August 18, 1981. U of A Health Sciences Center, Sponsor: U of A College of Medicine Cancer Center Tumor Board. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ. Approved for Category 1 credit.

#### 1st Annual Emergency Medical Care Seminar 8th Annual Arizona Conference on Rural Health

August 21-22. Embry-Riddle University, Prescott, AZ. Sponsors: Yavapai County Medical Society, Arizona Medical Assn., U of A College of Medicine, & Veteran's Administration Hospital (Prescott). Contact: Office of CME and Outreach, Attn: Christy Snow, U of A Health Sciences Center, Tucson, AZ 85724. Approved for category 1 credit.



### **Flexible Sigmoidoscopy for Primary Physicians**

August 22, 1981, Little America Motor Hotel, Flagstaff, Az. Sponsor: Coconino County Medical Society and ArMA. Contact: Brendon C. Hirschberg, M.D., 120 West Fine, Flagstaff, AZ 86001.

### **1st Annual Pacific Southwest Symposium for Physicians and Nurses on High Blood Pressure Control**

August 26-28, Camelback Inn Resort, Scottsdale, Az. Sponsors: Am. Heart Assoc., Arizona Depart. of Health Services, Kino Hospital, Tucson, et al. Contact: Arizona Department of Health Services, Hypertension Control Program, 1740 West Adams St. Phoenix, AZ 85077. Category 1 CME hours applied for.

### **Sexual Exploitation of Children**

August 29, 1981, The Registry Resort, Scottsdale, Sponsor & Contact: Professional Symposiums, Inc., P.O. Box 2795, Riverside, Calif. 92516. Approved for 6 hours of Category 1 credit.

## **SEPTEMBER**

### **Clinical Seminar Series "Immunology"**

September 12, 1981, U of A Health Sciences Center, Tucson, Az. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **Epidemiology of Skin Cancers**

September 15, 1981, U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine, Cancer Center Tumor Board. Contact: U of A Health Sciences Center, Department of Continuing Medical Education & Outreach, Tucson, AZ 85724. Approved for Category 1 credit.

### **Dean's Clinical Rounds "Sleep"**

September 18, 1981, U of A Health Sciences Center, Tucson, AZ. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **1st Annual Southwestern Poison Symposium**

September 18-19, 1981, San Diego Hilton Hotel, San Diego. Sponsors: U of A College of Medicine, Arizona Poison Control System, Regional Poison Control Center at the U of California, San Diego. Approved for Category 1 credit.

### **Mammary Reconstruction**

September 22, Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, Office of CME, 10401 Tunderbird Blvd., Sun City, AZ 85372.

### **Second Annual Conference on Perinatal Care**

September 25, 26, Little America, Flagstaff, Az. Sponsor: Arizona Medical Assoc. and Arizona Perinatal Trust. Contact: Arizona Perinatal Educational System, Inc., 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for 15 hours of category 1 credit.

### **The Medical Consequences of Nuclear Weapons and Nuclear War**

September 25-26, 1981 Albuquerque Convention Center, Albuquerque, New Mexico. Sponsor: U of New Mexico School of Medicine, Dept. of Medicine and Physicians for Social Responsibility. Contact: New Mexico Physicians for Social Responsibility, P.O. Box 4096, Albuquerque, New Mexico, 87106. Approved for 9 hours of Category 1 credit.

## **OCTOBER**

### **Radiation Safety**

October 5-8, 1981, U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Herschell Horton, R.N., Arizona Center for Occupational Safety and Health, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **Responsible Child, Responsible Family, Responsible School**

October 9, 1981, Arizona Biltmore Resort, Phoenix. Sponsor: St Luke's Hospital and Medical Center. Contact: Christine Campbell, Medical Meeting Planner, St Luke's Hospital & Medical Center, 525 North 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### **Clinical Seminar Series "Cardiovascular"**

October 10, 1981, U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **Fluid, Electrolyte, & Acid-Base Balance**

October 24, 1981, The Pointe Resort, Phoenix. Sponsor: Memorial Hospital. Contact: Medical Staff Secretary, Memorial Hospital, 1201 South Seventh Ave., Phoenix, AZ 85036. Approved for 6 hours of Category 1 credit.

### **Access: Conference on Disabled Workers**

October 27-28, 1981, Marriott Hotel, Tucson. Sponsor: U of A College of Medicine. Contact: Herschella L. Horton, R.N., Arizona Center for Occupational Safety and Health, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **Cardiopulmonary Intensive Care**

October 31, 1981 Arizona Biltmore, Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **Management Problems in Geriatric Medicine**

October 30-31, 1981, Lakes Club in Sun City, Arizona. Sponsor: Western Division American Geriatrics Society. Contact: Western Division of the American Geriatrics Society, 12630 N 103rd Avenue, Ste 14B, Sun City, AZ 85351. Approved for Category 1 credit.

## **NOVEMBER**

### **First Annual Southwestern Poison Symposium**

November 6-7, 1981 Scottsdale Hilton Hotel, Scottsdale. Sponsor: U of A College of Medicine. Contact Attn: Faith Carlisi-Smith, Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 10 hours of Category 1 credit.

### **American College of Physicians/Arizona Society of Internal Medicine Regional Meeting**

November 13-14, 1981 Doubletree Inn, Tucson. Sponsor: American College of Physicians, U of A College of Medicine, Arizona Society of Internal Medicine. Contact: Paul J. Rutala, M.D., F.A.C.P., U of A Health Sciences Center, Dept. of Internal Medicine, Tucson, AZ 85724.

### **Seeing Our Way Clear**

November 14, 1981, Arizona Biltmore, Phoenix. Sponsor: St Luke's Hospital and Medical Center. Contact: Christine Campbell, St Luke's Hospital and Medical Center, 525 N 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### **Clinical Seminar Series "Neurology"**

November 14, 1981 Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **Dean's Clinical Rounds**

November 16, 1981 U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **29th Annual Convention of the Medical Society of the United States and Mexico**

November 18-21, 1981 Tucson, Arizona. Sponsor: Medical Society of the United States and Mexico. Contact: Executive Secretary, 3161 North Pantano Road, Tucson, AZ 85715.

### **The Legal Hurt of Chronic Pain II**

November 19-20, 1981, The Registry Resort, Scottsdale. Sponsor: St. Luke's Hospital and Medical Center. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital and Medical Center, 525 North 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### **Soft Tissue Tumors**

November 21-23, 1981 McCormick Ranch Inn, Scottsdale, Arizona. Sponsor: Arizona Society of Pathologists. Contact: Garnt A. Hertel, M.D., Program Chairman, Good Samaritan Hospital, 1033 E. McDowell Road, Phoenix, AZ 85006.

### **The Adolescent Female**

November 28-29, 1981, Doubletree Inn, Scottsdale. Sponsor: U of A College of Medicine. Contact: Attn: Faith Carlisi-Smith, Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

## 1982 FEBRUARY

### International Cataract Surgery Symposium 1982

February 15-17, 1982. The Alamos Resort, Scottsdale, Arizona. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 N. 18th St., Ste 105, Phoenix, Arizona 85006.

### Pediatric Update 1982

February 15-18, 1982. La Posada Resort Hotel, Scottsdale, Arizona. Sponsor: St. Joseph's Hospital and Medical Center, Dept. of Pediatrics. Contact: Ronald A. Christensen, M.D., Department of Pediatrics, St. Joseph's Hospital and Medical Center, 350 West Thomas Road, Phoenix, AZ 85013. Approved for 16 hours of Category 1 Credit.

### Frontiers in Ophthalmology

February 18-20, 1982. Arizona Biltmore, Phoenix. Sponsor: St. Luke's Hospital Medical Center. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital Medical Center, 525 N. 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

## MONTHLY OR WEEKLY

### Shrine Medics Meeting

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

### Office Psychiatry for the Primary Provider

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit

### Counter Transference Group

Weekly, Thurs. 8—10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

### Monthly Meeting of Tucson Radiologists

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

### Pediatric Grand Rounds

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit

### Review of Forensic Pathology

#### Current Case, Special Topics

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.

## ARIZONA HEART INSTITUTE

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

### Clinical Conference Cardiovascular Medicine

Third Tues., 5:15 p.m., second floor classroom

## ARIZONA STATE HOSPITAL

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

### A.S.H. Psychiatric Grand Rounds

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm., Contact: Dr. Conger & Staff

### Clinical-Pathological Conference

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

### Medical Grand Rounds

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.

## BARROW NEUROLOGICAL INSTITUTE

### Medical Education

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### Neurology Teaching Conference

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf. Room.

### Neurosurgical Morbidity Conference

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### Neuro-ophthalmology Conference

Tuesdays, 7:30 a.m. in 8th floor neurology conference room.

### Spinal Injury Conference

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conf. Rm.—a multidisciplinary review of admission by neurosurgeons, orthopedists, and rehabilitation specialists

### Neuro-ophthalmology Conference.

Weekly, 7:30 a.m., 8th floor conference Rm.

### Neuropathology of Gross Specimens Conference

Thursday, 7:30-8:30 a.m. in the Morgue.

### Neurology-Neurosurgical

Fridays, 8-9 a.m., First Floor Conference Rm.

### Neuropathology or Neuroradiology Conferences

Friday, 9 a.m., Neuropathology in Neuropathology Conference Rm., Neuroradiology in First Floor Conference Rm

### Neurorehabilitation Conference

Tuesdays, noon, 8th Floor Conference Rm.

### Neurosurgical Journal Club

Saturdays, 9-11 a.m. in Eighth Floor Conference Rm.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Thunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED.D. Director of Education.

### Medical Department Continuing Medical Education

4th Wednesday, 12 Noon, C119. May, July, Sept. & Nov.

### Tumor Board

Last Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept. & Nov

### Surgical Department CME

4th Friday, 7 A.M., Educ. Center Classrooms & II. Contact: Brian Updegraff, M.D.

## CAMELBACK HOSPITAL

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr. M.D.

### Clinical Conference

3rd Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

1400 South Dobson Road, Mesa, Arizona. Contact: L.A. Rosati, M.D. Approved for category 1 credit.

### CME Programs

Weekly Tuesday, 7 p.m., Cafeteria-West End

### Clinical Conference - Dept. of Medicine

Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch Grande Rm.

### OB/GYN Medical Staff Conference

Weekly, Monday, 12:30-1:30 p.m. Grande Rm.

### Pediatric Case Conference

2nd. Friday, 12:30 p.m., Grande 2

## DOCTORS HOSPITAL

1747 East Thomas Road, Phoenix, Arizona. 86016. Contact: Medical Staff Secretary for additional information.

### Physicians Continuing Education Program

1st Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

1400 N. Wilmont Road, Tucson, AZ 85712. Contact: Eric G. Ramsay, M.D. Approved for category 1 credit.

### Family Practice Department Meeting

1st Monday, 12 Noon, Contact: R. Grossman, M.D.

## FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA

1215 N. Beaver Street, P.O. Box 1268 Flagstaff AZ 86002. Contact: B. C. Hirschberg, M.D., CME Program Clinical Conference. Approved for category 1 credit

### Interesting Case Conference

1st Tuesday, 12:30 P.M., Tollefson Rm.

### Clinical Conferences

Weekly Tuesdays, 12:30 P.M., Tollefson Rm.

### Tumor Board Case Conference

3rd Tuesday, 12:30 P.M., Hospital Conf. Rm.

### Mortality & Morbidity Conference

1st Thursday, 12:30 P.M., Hospital Conf. Rm.



The treatment of critically injured patients demands a repertoire of highly specialized skills and training. Are you, and the people you work with, up on the latest techniques?

Attend Trauma Care '82, January 17-21, and open your mind to this innovative and crucial dimension of emergency medicine. This national symposium is sponsored by John C. Lincoln Hospital and Lincoln Institute of Surgery & Trauma in Phoenix. The Lincoln trauma team approach is acclaimed one of the most innovative and progressive in the West.

Trauma Care '82 will provide an educational and enlightening forum for the exchange of ideas and methods on this dynamic aspect of emergency care. You'll learn about the most current trends in patient transport, team communication, neuro management in the I.C.U., and much more. There will be lectures, panel and small discussion groups and creative problem-solving sessions. The agenda is filled with noted national authorities in the field of trauma care, as well as an impressive roster of speakers from the staff of the John C. Lincoln Hospital Trauma Center.

In addition to all this, the American College of Surgeons is sponsoring a special Advanced Trauma Life Support Course, January 15-16, prior to the symposium (limited availability).

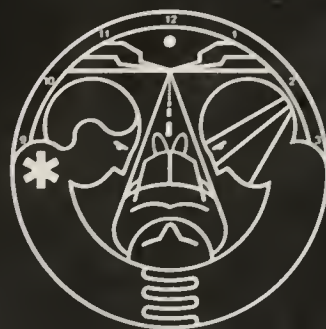
And what better setting could there be for this spectacular event than the great Southwest? Few places can boast its grandeur, or its warm winter climate. You'll stay at the luxurious new Alamos Resort in Scottsdale, a city that blends Old West charm with cosmopolitan chic. Spouses will be treated to a fun program of touring, shopping and sight-seeing. And you can top off your trip with a post-symposium jaunt to Mexico!

# There's a whole new world of trauma medicine. Are you ready to brave it?



Be a part of medical history in the making. Spend a week in the glorious Arizona desert while you're doing it! Reserve your place now for Trauma Care '82, one of the most important professional conferences of the year.

Call collect to Paul K. Halverson, Symposium Director at (602) 943-3641. Or write to the address below for all the details.



## TRAUMA CARE

Jan 82

John C. Lincoln Hospital  
and Trauma Center  
9211 North 2nd Street  
Phoenix, Arizona 85020



## GOOD SAMARITAN HOSPITAL

1033 East McDowell Rd., Phoenix, AZ  
Contact: W. J. Howard, M.D. Approved for  
category 1 credit.

### Anatomical Path. & Cytology

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf  
Rm.

### Gynecological Section Conference

2nd Monday, 12:30-1:30 p.m., West Rm

### Monday Noon Conference

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### Mortality/Morbidity, Surgery Comm.

2nd Monday, 11:30-2:00 p.m., West Rm

### Obstetrical Section Conference

1st Monday, 12:30-1:30 p.m., West Rm

### Pulmonary Disease Grand Rounds

Weekly, 12:00-1:00 p.m., D-5 North

### Family Practice Conference

Weekly Tuesday, 12:00-1:00 p.m., Fam  
Practice Conf. Rm.

### Pediatric Grand Rounds

3rd Tuesday, 7:30-8:30 a.m., Contact: Paul  
Bergeson, M.D.

### PM & R Noon Inservice

2nd & 4th Tuesday, 12 Noon, R-2 Conference  
Rm.

### Surgical Grand Rounds

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### Clinical Cancer Fourm

3rd Wednesday, 12:00-1:00 p.m., West Rm,  
Contact: John A. Bruner, M.D.

### Combined Cardiovascular & Family Practice Conf.

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5  
North.

### Learning Disabilities

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm

### OB/GYN Dept. Review & Statistics

Weekly, 12:30-3:00 p.m., OB/GYN Conf. Rm.

### Gynecological Pathology

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf  
Rm.

### GI Radiology Conference

1st Thursday, 12:00-1:00 p.m., F151,  
Radiology Conf. Rm.

### Phoenix Ultrasound Soc. Meeting.

Medical Education Building, Contact: Dr.  
Ben Ora

### Neurology Grand Rounds

Weekly Thursday, 9:00-10:00 a.m., D-5 North.

### Tumor Treatment Planning Conf.

2nd & 4th Thursdays, 12:00-1:00 p.m., F151  
Radiology

### Joint Tumor Gyn Conference

2nd Friday, 12:30-1:30 p.m., West Rm.

### Medical Grand Rounds

Weekly Friday, 8:00-9:00 a.m., West Rm.

### Neuropathy Conference

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

### Psychiatry Grand Rounds

Weekly Friday, 11:30-1:00 p.m., East Rm

## KINO COMMUNITY HOSPITAL, (THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact:  
Eric C. Ramsay, M.D., Approved for Category  
1 credit.

### Attending's Hour

5th Monday, 12:30 p.m., Contact: J.  
Goldberger, M.D.

### Infectious Disease Conference

3rd Monday, 12:30 p.m., Contact: Barry  
Friedman

### Ophthalmology Conference

1st Monday, 12:30 p.m., Contact: Bruce  
Gillers, M.D.

### Psychiatric Conference

2nd & 4th Mondays, Contact: J. Santiago,  
M.D.

### Surgical Conference

Weekly Mondays, Contact: R. Fischer, M.D.

### Cardiology Conference

4th Tuesday, 12:30 p.m., Contact: B. Phibbs,  
M.D.

### Clinical Pharmacology Conference

5th Tuesday, 12:30 p.m., Contact: M. Katz,  
Clinical Pharm.

### Neurology Conference

1st & 3rd. Tuesday, 12:30 p.m., Contact: J.  
Laguna, M.D.

### Radiology Conference

2nd Tuesday, 12:30 p.m., Contact: M. Baker,  
M.D.

### Medical Surgical Grand Rounds

2nd Wed., 12:30 p.m., Contact: Chief Medical  
Resident

### Medical Conference

1st Wed, 12:30 p.m., Contact: Chief Medical  
Resident

### Cardiology Conference

1st Thursday, 12:30 p.m., Contact: B. Phibbs,  
M.D.

### Endocrine Conference

2nd Thursday, 12:30 p.m., Contact: E.  
Munjack, M.D.

### GI Conference

4th Thursday, 12:30 p.m., Contact: C. Kanun,  
M.D.

### Mortality & Morbidity Conference

3rd Thursday, 12:30 p.m., Contact: E.  
Munjack, M.D.

### OB/GYN Dept. Meeting

2nd Thursday, 2 p.m., Contact J. Wurzel, M.D.

### OB/GYN Pathology Conference

Weekly, Thursday, except 2nd, Contact: J.  
Wurzel, M.D.

### OB/GYN Sonograph/X-ray Conference

4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

### Clinical Pathology

5th Thursday, 12:30 p.m., Contact: J.  
Fleishman, M.D.

### Renal Conference

1st Friday, 12:30 p.m., Contact: T. Pence,  
M.D.

### Hematology Conference

2nd & 4th Friday, Contact: S. Ketchel, M.D.

### Rheumatology Conference

3rd Friday, 12:30 p.m., Contact: J.  
Goldberger, M.D.

### Chest Conference

5th Friday, 12:30 p.m., Contact: D.  
Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008  
**Continuing Medical Education Program**  
Every other Wednesday, 7-8 a.m.

### Clinical Conferences

2nd & 4th Wednesday, 12-1 p.m., Medical  
Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008.  
Contact: Leonard Tamsky, M.D.

### Medicine Conference

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

### Chest Surgery Conference

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

### Hematology Conference

2nd Tuesday, 1:00 p.m., Contact: W.  
Koppenbrink, M.D.

### OB/GYN Dept. Grand Rounds

Weekly Tuesday, 12 Noon, Santa Cruz Rm.

### Obstetrical Problem Conference

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

### Orthopedic Conference

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

### Pediatric Grand Rounds

2nd Tuesday, 7:30-8:30 a.m., Contact: Rob  
Ganelin, M.D.

### Urology Discharge Planning Conference

Weekly, 11:30 a.m., Station 42

### Hand Surgery Conference

Weekly Wed., a.m., Santa Cruz Rm.

### Neurosurgery Discharge Planning

Weekly Wed., 1:30 p.m., Station 42.

### OB/Neonatology Seminar

Weekly, Wed. 7:30 a.m., Yavapai Rm.

### Clinical Psychiatric Conference

Weekly, Wed., 11-12 p.m., Mental Hea  
Annex, Rm. 1346.

### Surgery Conference

Weekly Wed., 7-8 a.m., Surgical Dept.

### Current Concepts in Medicine & Surgery

1st Thursday, 1 p.m., Dr. Hospital Class Rm.  
Contact: Dr. Tamsky.

### Cardiology Conference

Weekly Thurs., 2 p.m., Santa Cruz Rm.

### OB/GYN Resident Conference

Weekly Thurs., 12 p.m., Yavapai Rm.

### GYN Endocrine Seminar

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

### OB/GYN Surgical Pathology Conf.

Weekly Friday, 7:30 a.m., Yavapai Rm.

### Orthopedic X-Ray Conference

Weekly Friday, 7:30 a.m., Santa Cruz Rm.

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N 20th Ave., Phoenix, AZ 85018  
Contact: Leonard M. Lapenson, M.D.  
Approved for category 1 credit.

### Clinical Conferences

1st & 3rd Tuesdays, 12 noon, 5th flo  
auditorium.

### CPC or Medical-Surgical Forum

4th Tuesday, 12 noon, 5th floor auditorium

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85018  
Contact: Leland L. Fairbanks, M.D.  
Approved for category 1 credit.

### Pediatric Grand Rounds

1st Tuesday, 7:30-8:30 a.m., Contact:  
Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A**  
Wed. Weekly, 8:00 a.m.

### Otolaryngology Grand Rounds

4th Wednesday, 4-5 p.m., Conference Rm.  
Contact: N. Wendell Tood, M.D.

### Family Practice/Emergency Room Teaching Conference

Thursday Weekly, 7:30-8:30 a.m., Conf. Rm.  
A, Contact: Drs. L. Fairbanks & E.Y. Hoopes

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:  
George Scharf, M.D. Approved for category  
credit.

**Monthly Medical Education Seminar**  
Monday, 6:30 p.m., Kiva Conf. Rm.

**Clinical Conferences**  
Weekly Tuesday, 12:30 p.m., Kiva Conference Rm.

**Tumor Board Conference**  
Weekly Friday, 12 p.m., Kiva Conf. Rm  
Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

10 East 4th Street, Scottsdale, AZ 85251  
Contact: W. S. Williams, M.D., Approved for Category 1 credit.

**Family Practice Conference**  
Monday, 12:30 p.m., Doctors' Lounge

**Emergency Medical Services Conference**  
Monday, 12:30 p.m., Doctors' Lounge

**Neurology/Neurosurgery Conference**  
Monday, 12:30 p.m., Doctors' Lounge

**ACC Conference**  
Monday, 12:30 p.m., Doctors' Lounge

**Pediatrics Conference**  
Monday, 12:30 p.m., Doctors' Lounge

**Pulmonary Conference**  
Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiology Conference**  
Tuesday, 12:30 p.m., Doctors' Lounge

**Surgery Conference**  
Tuesday, 12:30 p.m., Doctors' Lounge

**Ident Grand Rounds**  
Tuesday, 12:30 p.m., Doctors' Lounge

**Medical Subspecialties**  
Tuesday, 12:30 p.m., Doctors' Lounge

**Nephrology Conference**  
Thursday, 12:30 p.m., Doctors' Lounge

**Tumor Conference**  
Thursday, 12:30 p.m., Doctors' Lounge

**Med/Surg/Radiology Conference**  
Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

West Thomas Road, Phoenix, AZ 85013.  
Contact: Joseph C. White, M.D.

**OBGYN Section Conference**  
& 4th Mondays, 12:30-1:30 p.m., 1st Floor Conf. Rm.

**Pediatrics Conference**  
Weekly Monday, 12:30 p.m., Pediatric Department.

**Pediatric Rounds**  
Weekly Monday, Wed. & Friday, 10:30 a.m., Pediatric Department.

**Pediatric Grand Rounds**  
Tuesday, 7:30-8:30 a.m., Contact: J. Kipp Carlton, M.D.

**ACC Conference**  
Weekly Tuesday, 12:30 p.m., Pediatric Department.

**Clinical Grand Rounds**  
Weekly Wednesday, 8 a.m., 1st Floor Conf. Rm.

**Inviting Professor Formal Presentation**  
Weekly Thursday, 8 a.m.M., PIMC

**Inviting Professor Informal Presentation**  
Weekly Thursday, 9:30 a.m., 1st floor Conf. Rm.

**Inviting Professor Formal Presentation**  
Weekly Thursday, 12:30 p.m., PIMC

**Neurology Conference**  
Weekly Fridays, 12:30 p.m., Pediatric Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N Wilmot Road, Tucson, AZ Contact Eric G Ramsay, M.D. Approved for Category 1 credit

**Family Practice Department Meeting**  
3rd Tuesday, 12 p.m., Contact: Wm. Moteforte.

**Ophthalmology Morbidity/Mortality Conf.**  
4th Tuesday, 12:15 p.m., Contact: Kim Sowards.

**Current Concepts in Medicine**  
Weekly, Tuesday, 12 p.m., Auditorium

**Hematology-Oncology Conference**  
Last Wednesday, 12:15-1:15 p.m., Contact: S. Salmon, M.D

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact: Gerald L. Hansbro, M.D.

**Cardiac Conference**  
Weekly Monday, 12:15 p.m., Auditorium

**Surgery Conference**  
1st Tuesday, 12:15 p.m., Auditorium

**Emergency Medicine Conference**  
1st Wednesday, 12:15 p.m., Auditorium

**Cardiovascular-Thoracic Record Review**  
3rd Wednesday, 12:15 p.m., Auditorium

**Psychiatry Conference**  
3rd Thursday, 7 a.m., Auditorium

**Combined Medical General Practice Conference**  
1st Friday, 12:15 p.m., Auditorium

**Toxicology Grand Rounds**  
2nd Friday, 7:30 a.m., Auditorium

**Ophthalmology Conference**  
1st Saturday, 8:30 a.m., Auditorium.

## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.

**Monthly Specialty Conference-Dept. of Surgery**

1st Monday, 7:30 a.m., Century Rm. A., Contact: Med. Staff Office.

**Grand Rounds: Medical Surgical, Family Practice, Pathology, Radiology**  
Weekly Thursday

**Emergency Medicine Lectures**  
Weekly Thursday, 8 a.m., Century Room A.

**Mental Health Update**  
1st Friday, 11:30-1:00 p.m., Century Rm. A.

**Cardiology Conference**  
Weekly Friday, 8:00-9:00 a.m., Century Rm., Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.  
Contact: Eric G. Ramsay, M.D. Approved for Category 1 credit.

**Cardiology Conference**  
Weekly Monday, except last, 12 Noon, Contact: J. Fernandez, M.D.

**Dermatology Conference**  
4th Monday, 5:00 p.m., Contact: R. Miller, M.D.

**Endocrinology Conference**  
Last Monday, 12 p.m., Contact M. Parker, M.D.

**Perinatal Conference**  
2nd Monday, 7:30 p.m., Contact: J. Lohman, M.D.

### Chest Conference

3rd Tuesday, 12 noon, Contact William Nevin, M.D.

### Hematology Conference

4th Tuesday, 12 Noon, Contact M. Boxer, M.D.

### Infectious Disease Conference

2nd Tuesday, 12 noon, Contact: B. Friedman, M.D

### Nephrology Conference

1st Tuesday, 12 noon, Contact: Dr. Seltzer

### Orthopedic Conference

1st Tuesday, 8:00 p.m., Contact: Jay Katz, M.D.

### Pediatric Grand Rounds

1st & 3rd Tuesday, 12.30 p.m., Contact: Dr. Lightner.

### Cardiac Cath. Conference

2nd & 4th Wednesday, 5:15 p.m., Contact L. Buckels, M.D.

### Clinical Pathology Conference

Last Wednesday, 8:00 a.m., Contact: Dr. Fuchs.

### Family Practice Meeting

2nd Wednesday, 12:30 p.m., Jan., April, July, & Oct. Contact: C. Mangelsdorf, M.D.

### Medical Conference

Weekly Wednesday, 8:00 a.m., Contact M. Fuchs, M.D.

### Neurology-Neurosurgery Conference

Weekly Wednesday, 12 noon, Contact: H. W. Buschsbaum, M.D.

### Dermatology Conference

1st Thursday, 12 noon, Contact: R. Friedman, M.D.

### Neuroradiology Conference

Weekly Thursday, 5:00 p.m., Contact: N. Komar, M.D

### Tumor Conference

Weekly Thursday, 12 noon, Contact Dr. Hastings.

### G—I Conference

Weekly Friday, 12 noon, Contact: C. Krone, M.D

### Interhospital Nuclear Medicine Conference

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts, M.D.

### OBGYN Conference

1st Friday, 7:30 a.m., Contact: P. Evans, M.D

### OBGYN Pathology Conference

3rd Friday, 7:30 a.m., Contact R. Spark, M.D.

### Surgical Department Conference

Weekly Saturday, 7:30 a.m., Contact: Dr. Hastings, TMC.

### Surgical Grand Rounds

Weekly Saturday, 9:00 a.m., UAHSC-Room 5403, Contact: Dr. Norton.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix, AZ 85012. Contact: Alfred Heibrum, M.D. Approved for Category 1 credit.

### GI X-Ray Clinical Correlation Conf.

1st & 3rd Monday, 1 p.m., Rm. C435, Contact Drs. Sanowski, & Nielsen.

### Medical/Surgical GI Conference

1st & 3rd. Mondays, 3 p.m., Rm. 3134, Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext 493.

### GI Pathology Conf.

2nd. & 4th Monday, 1 p.m., Path Conf. Rm, Contact: Dr. Sanowski.

### GI Grand Rounds

Weekly Tuesday, 1 p.m., Contact: Drs. Sanowski, Kozarek & Partyka



# FLUID, ELECTROLYTE AND ACID-BASE BALANCE

a practical review and update  
by

**Harry F. Weisberg, M.D.**

Clinical Professor of Pathology Medical College of Wisconsin  
Associate Director Department of Pathology Mt. Sinai  
Medical Center Milwaukee, Wisconsin

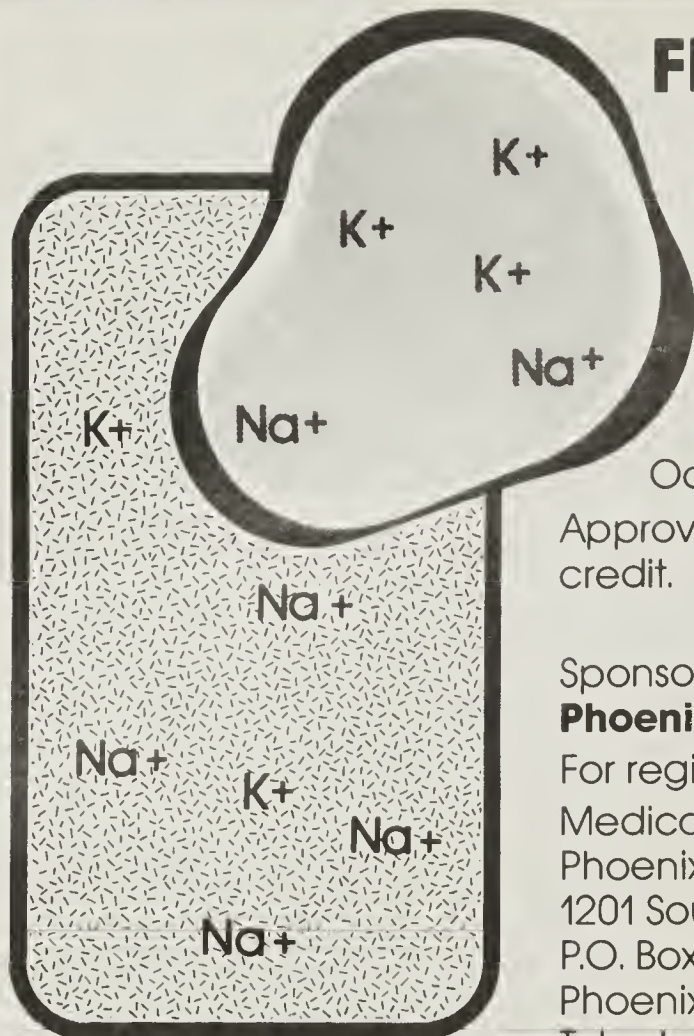
October 24, 1981

Approved for six hours of Category 1 CME credit.

Sponsored by the  
**Phoenix Memorial Hospital Foundation**

For registration information contact:

Medical Staff Office  
Phoenix Memorial Hospital  
1201 South Seventh Avenue  
P.O. Box 21207  
Phoenix, Arizona 85003  
Telephone (602) 258-5111, ext. 331



## Cancer Symposium

Weekly Wed., 1 p.m., T-5, Contact Dr. Byrne, Ext. 426.

## Housestaff Pulmonary Disease Teaching Conf.

Weekly Wed., 3-4 p.m., Contact: Dr. Rohwedder, Ext. 388.

## Medical Surgical Chest Conference

1st & 3rd Thursday, Contact: Dr. Rohwedder or Dr. Gill.

## Cardiology Conference

2nd Thursday, 1 p.m., Rm. T-5.

## Consultant Rounds

1st Thursday, 1:30 p.m., Contact: Dr. Harlan

## Consultant Rounds

2nd Thursday, 11:00 a.m., Contact: Dr. Schaffner

## Consultant Rounds

4th Thursday, 8:00 a.m., Contact: Dr. Severino

## Medical Service Grand Rounds

Weekly Friday, 11 a.m., Contact: Dr. Zeller

## GI Resident Conference

Weekly Friday, 1:00 p.m., D446, Contact: Drs. Grobe, Phelps, Sanowski and Kozarek.

## Surgical Journal Review & Videotape Session

Weekly 1 p.m., Room 3134.

## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed below. Approved for category 1 credit

## Medical Rounds

1st & 3rd Thursdays, 10:00 a.m.-2:30 p.m.

## Surgical Rounds

4th Thursday, 10 a.m.-2:30 p.m.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723. Contacts listed below. Approved for category 1 credit.

## Medical Surgical Chest Conference

Weekly Tuesday, 2 p.m., Contact: Dr. Young

## Medical Grand Rounds

Weekly Wed., 12-1:00 p.m., VA Hospital Staff Conf. Rm. & (AHSC), Contact: Jay Smith, M.D.

## Surgical Grand Rounds

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

## Endocrinology Seminar

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm. N318, Contact: Dept. of Internal Medicine.

## Grand Rounds

Weekly, Thursday, 11 a.m., Bldg 107, Contact: J. Fitzharris, D.O.

## Vascular Radiology, Interesting Case Conf.

Weekly Thursday, 12:00 noon.

## Neurology Grand Rounds

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

## Radiology Conference

1st Tuesday, 7:00 a.m.

## Operation Outreach

2nd Tuesday, 6:30 p.m.

## Pathology Conference

4th Tuesday, 7:00 a.m.

## Operation Outreach

2nd Wednesday, 7:00 a.m.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson AZ 85724. Robert M. Anderson, M.D., Dir. of CME. Contact: See below. Approved for category 1 credit.

## Anesthesiology Board Review Conference

2nd & 4th Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contacts: Dr. Vaughn & Kryc.

## Anesthesiology Basic/Clinical Science Lectures

Weekly Thursday, 4-5 p.m., Room 5403

## Anesthesiology Case Discussion

Weekly Wed., 7:00 a.m., AHSC, Dining Rm. C&D.

## Anesthesiology Resident Presentation

1st Monday, 4-5 p.m., AHSC Dining Room C&D, Contacts: Drs. Otto & Zehngut.

## Cancer Center Tumor Board Seminar

3rd Tuesday, Monthly, 12-1 p.m., HSA Auditorium, Contact: Cancer Center

## Cardiac Catheterization Conference

Weekly Friday, 4:00 p.m., Contact: D. Temkin.

## Cardiology Research Conference

Weekly Tuesday, 7:30 a.m., Contact: D. Roeske.

## Tucson Cardiovascular Society

1st Thursday, 6:00 p.m., AHSC, Contact D. Byrne-Quinn



**works well in your office...**

# **NEOSPORIN® Ointment** (polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**works just as well in their homes.**



- It's effective therapy for abrasions, lacerations, open wounds, primary pyodermas, secondarily infected dermatoses.
- It provides broad-spectrum overlapping antibacterial effectiveness against common susceptible pathogens, including staph and strep.

• It helps prevent topical infections, and treats those that have already started.

• It contains three antibiotics that are rarely used systemically.

• It is convenient to recommend without a prescription.

**NEOSPORIN® Ointment—for the office, for the home.**  
(polymyxin B-bacitracin-neomycin)

**Effective • Economical • Convenient • Recommendable**

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**WARNING:** Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neomycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as a failure to heal. During long-term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

**PRECAUTIONS:** As with other antibacterial preparations, prolonged use may result in overgrowth of non-susceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

**ADVERSE REACTIONS:** Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section).

Complete literature available on request from Professional Services Dept. PML.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709



**Clinical Immunology, Allergy  
& Rheumatology Rounds**

Every Friday Noon-1 p.m. Contact John Boyer, M.D., Dept. of Internal Medicine

**Cerebrovascular Disease Conference**

Mondays, 5-6 p.m., Weekly, Rm. 5505. Contact Jerry Goldston, M.D., Department of Surgery.

**Dermatology Rounds**

Weekly Wed., 11:30 a.m., Contact Dr. Lynch

**Endocrinology Seminar**

Weekly Thursday, 12-1 p.m., Contact Dr. Johnson

**Emergency Medicine Grand Rounds**

Tuesdays, 9 a.m., AHSC, Contact Dr. Sanders.

**GI Pathology Conference**

4th Friday, 1:30 p.m., AHSC, Contact S. Paplanus

**GI Radiology Conference**

2nd & 4th Mondays, 7:30 a.m., AHSC, Contact Dr. T. Hunter

**Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact Dr. Manning

**Hematology-Oncology Clinical Conference**

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact S. Salmon, M.D., Dept. of Internal Medicine

**Medical Grand Rounds**

Weekly Wed., 12-1 p.m., AHSC, Contact Dr. J. Smith

**Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact Dr. Stern

**Neuropathology Review Conference**

Thursdays, 8:30 a.m., Rm. 5120, UAHSC

**Neuroradiology Conference**

Weekly Thurs., 5:00 p.m., Contact Dr. P.C. Christenson

**Neuromuscular Journal Conference**

2nd & 4th Thursday, 7-9 p.m., Contact Dr. Stern.

**Neuropathology Case Review**

Weekly Friday, 8:30 a.m., AHSC, Contact Dr. P. Johnson.

**Neurosciences Seminar**

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact Dr. C. Bamford

**Nuclear Medicine**

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

**Ophthalmology Grand Rounds**

3rd Friday, 7:30 a.m., AHSC, Contact Dr. J. Herschler

**Orthopedic Rounds**

Saturday, 8:00 a.m., Contact Dr. Peltier.

**Pain Conference**

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

**Pathology Seminar**

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact Dr. P. Finley

**Tucson Pathologist Conference**

1st Monday, 7:30 p.m., AHSC, Contact Dr. A. R. Graham.

**Pediatric Grand Rounds**

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact Dr. H. Thompson.

**Pediatric Problem Patient Conference**

Weekly Wed., 8:00 a.m., Contact Dr. Walson

**Pediatric Research Forum**

Weekly Tuesday 7:30 a.m., Contact: Dr. James Jones

**Pediatric Specialty Conference**

Weekly Friday 8:00 a.m., Contact: Dr. Philip Walson

**This publication  
is available in microform.**



**University Microfilms International**

Please send additional information

Name \_\_\_\_\_  
Institution \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, Mi. 48106  
U.S.A.

30-32 Mortimer Street  
Dept. P.R.  
London WIN 7RA  
England

**Psychiatric Grand Rounds**

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

**Psychiatric Monthly Case Conference**

2nd Friday, 7:30 a.m., Contact Dr. Alan Levenson, Palo Verde Hospital

**Pulmonary Rounds**

Weekly Friday, 11:30 a.m., Contact Dr. Benjamin Burrows.

**Chest Radiology**

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC, Contact: Irwin M. Freundlich, M.D., Dept. of Radiology

**Neuroradiology Teaching Conference**

Weekly Wednesday, 7:30 a.m., AHSC, Contact Dr. Christenson

**Radiation Oncology Planning Conference**

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

**Radiology Interesting Case Conference**

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

**Gastrointestinal Radiology**

Weekly Tuesday, 5-6 p.m., AHSC, Contact Radiology Dept.

**Radiology-Rheumatology Conference**

Weekly Thursday, 7:45 a.m., UAHSC, Library Rm. 1535C.

**Uroradiology (Genitourinary Radiology)**

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

**Renal Pathology Conference**

1st & 3rd Thurs., 11:30 a.m., Contact Dr. Nagle.

**Residents Noon Conference**

Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact Dr. A. Greensher.

**Resident's Conference**

Wednesday, weekly 5-6 p.m., Diag Radiology Conf. Rm.

**Surgical Grand Rounds**

Saturdays, 9:00 a.m., Rm. 5403, AHSC, Contact: Dr. Wangenstein.

**Surgical Morbidity & Mortality Conference**  
Weekly Wed., 8:00 a.m., Contact Dr. Wangenstein.

**Vascular Surgery Conference**

Weekly Tuesdays, 5-6 p.m., AHSC Dining Room E.

**Joint Thyroid Conference**

1st & 3rd Wed., Contact S. C. Werner, M.D.

**Trauma Conference**

Monday, 4:00 p.m., UAHSC, Rm. 4410. Contact Dr. Peltier.

**Toxicology Conference**

Weekly Tuesday, 8:00 a.m., Contact Dr. Keith Likes

Section.

**Tucson Ultrasonography Group**

Weekly Wed., 4:30 p.m., AHSC, Contact Dr. I. Freundlich.

**General Urology Conference**

Weekly Thursday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach

# Practice what we teach.

Today there are over 31 million men, women and children suffering from the many forms of arthritis and related rheumatic diseases. And there just aren't enough trained rheumatologists to help them.

That's why arthritis sufferers need your help.

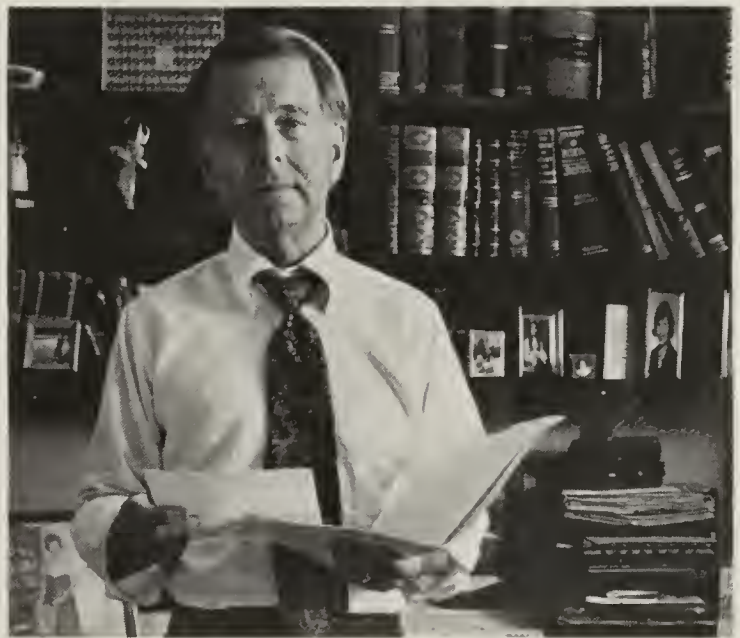
They must depend heavily on the family practitioner for better diagnosis, more effective patient treatment.

Contact your local Arthritis Foundation chapter for the latest information on arthritis. This includes continuing educational seminars by leading rheumatologists, scientific meetings, "outreach" programs—as well as the "Bulletin on the Rheumatic Diseases," "Arthritis and Rheumatism Journal," "Primer on the Rheumatic

Diseases," audio cassettes and other professional materials. Free disease handbooks and medication pamphlets are also available to patients.

Please. Let us help your practice with what we teach.

The Arthritis Foundation helps doctors help.





# Partnership with Arizona medicine for one quarter century!



For 25 years, Camelback Hospitals have maintained a working partnership with Arizona's medical profession in offering eminent psychiatric facilities for the care and treatment of emotionally and mentally ill patients.

## **Services doctors understand & appreciate**

As non-profit community facilities, Camelback Hospitals offer psychiatric services unavailable at most institutions:

- Totally separate programs for adults, young adults, adolescents and older adults.
- Intensive diagnostic and short-term treatment for all age groups.
- Progressive approaches to the treatment of alcohol and drug abuse.
- A special Activity Center with art, music, dance, recreation, occupational therapy and personal effectiveness programs.
- Individual, group and family therapy with special psychodrama sessions.
- Day Treatment Program.

## **A pleasant, different kind of atmosphere**

Patients enjoy bright, sunny buildings, designed for psychiatric treatment and rehabilitation. Special emphasis is placed on providing each patient with a more complete understanding of himself, so that he can participate in his therapy with insight and intelligence.



**Camelback Hospitals**

Scottsdale Camelback Hospital  
7575 E. Earll Drive  
Scottsdale, AZ 85251  
(602) 941-1108

Phoenix Camelback Hospital  
5055 N. 34th Street  
Phoenix, AZ 85018  
(602) 955-6200

# Another good reason to insure with MICA is YOUR Reasonable Cost for "Tail" Coverage.

Before purchasing a medical malpractice policy in Arizona, **ask** about the cost of "tail" coverage.

When a physician moves out of Arizona and wishes to protect himself/herself for claims on incidents which occurred prior to cancelling the MICA policy and leaving the State, "tail" coverage should be purchased.

This is when the physician becomes fully aware of the cost of such coverage. With MICA, the cost for "tail" coverage is only **80%** of the premium rate in effect at the time of cancellation of the MICA policy. Most **other insurance companies** charge anywhere from **100%** to **300%** of the last annual premium.

For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402

MICA MICA MICA MICA

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association



# COMPUTED TOMOGRAPHY OF THE HEAD



## **CNS** Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207•  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

## Our trauma team . . .

The ability to mobilize people and facilities on a moment's notice is essential in treating trauma victims. The Lincoln Hospital Trauma Center has adopted a systematic team response to and established protocols for the treatment of the critically injured patient. Because the Lincoln Hospital Trauma Center is a *total medical service*, there is no need to contact a specific physician when making a referral. Simply call the Trauma Center's toll-free line.

**PHYSICIAN REFERRAL LINE**  
**1-800-352-7981**



### **John C. Lincoln Hospital TRAUMA CENTER**

9211 North Second Street  
Phoenix, Arizona 85020

**When time counts . . . count  
on the 24-hour services of the  
Lincoln Hospital Trauma Center!**



# the fine line between life and death

**Question:** Can I take the guesswork out of developing a new building for investment or my practice?

**Answer:** Yes, LCA makes it all clear with Up-Front help on site selection, conceptual budget analysis, loan applications and many other services.

LCA provides much more than Design. Please call us. . .We can help.

 **Loy R. Clemons, A.I.A.**  
Architects and Planners

2519 EAST THOMAS RD.  
PHOENIX, ARIZONA 85016  
PH. (602) 957-3235

## PROTECT YOUR SURVIVORS

*How long has it been since you reviewed your will? Wills should be updated periodically to make certain they continue to anticipate the needs and concerns of your family. Although an attorney's expertise is required in writing or reviewing a will, there are other plans and processes that need to be initiated by the physician and his family. To help you set your affairs in order, the Arizona Medical Association and the Auxiliary have prepared a booklet that deals with many of the legal, financial, and emotional problems that all too often accompany death. To order your copy, phone or write the ArMA office and ask for*

**"PHYSICIAN'S SURVIVORS  
INFORMATION"**  
pamphlet.

810 W. Bethany Home Road  
Phoenix, AZ 85013  
Phones: 246-8901

Tucson members ask operator for  
Enterprise 265

## YOU WORKED HARD



it will last a lifetime....

### THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

**ARIZONA LAMINATING SERVICE, INC.**  
7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

## Classified

### DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"

### DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People  
70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090



*Creative Design Ltd.*



Susan Yug Schnoerr      Cindy L. Mulgrew

1720 West Isleta Avenue  
Mesa, Arizona 85202  
(602)-839-6229 or 831-6380

*Residential and Commercial  
Custom Interiors*

**Louis Jacob**

General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



**We Want You With Us**



**L. Louis Jacob Agency**

Complete Insurance Services  
Call Us for an Auto Quote

Loy R. Clemons, A.I.A.  
President



**Loy R. Clemons, A.I.A.**  
Architects and Planners

2519 EAST THOMAS RD.  
PHOENIX, ARIZONA 85016  
PH. (602)957-3235



**Relief of Headaches  
Concerning Practice  
Management Problems.**

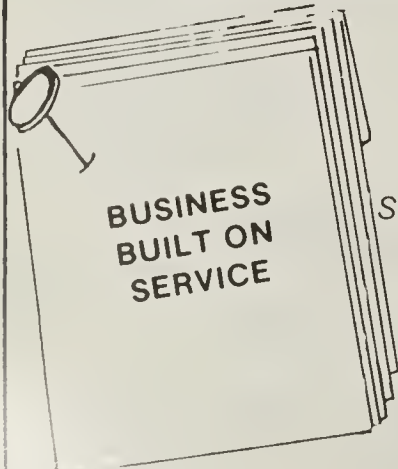


**J. Prekup & Assoc.**

**Problem Solvers for the Medical Profession.**

3033 N. Central, Suite 509-C Phoenix, Az 85012  
(602) 279-1884

**GUARANTEED SAVINGS!!**



Billing and mailing  
same — day services

*Statements made from your  
ledgers at your office*

**House of Mailings**  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708

*Tired of all that money going out?*

**For a competitive Quote on:**

- Physicians & Surgeons Malpractice •
- Office Package •
- Automobile •
- Homeowners •



**PHOENIX-AMERICAN INSURANCE AGENCY**  
1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*

## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### FAMILY PRACTICE

M.D. retiring after 35 years in central Phoenix location. Selling practice, real estate (includes two rentals), equipment & furnishings. Seller will work with buyer during transition. Negotiable \$30,000 down & seller will finance balance of \$110,000 for 15 years at 10%. Contact Charles Moore, Allan Jeffries Realty, Inc. 1001 N. Central, Phoenix, AZ 85004. Phone (602) 252-6736.

### CHIEF OF CARDIOLOGY

Position available in 550+ bed university affiliated teaching hospital. For additional information, contact John W. Heaton, M.D., Chairman, Department of Medicine, MCGH, 2601 East Roosevelt, Phoenix, AZ 85008.

### ENDOCRINOLOGIST STAFF POSITION AVAILABLE

Research opportunities available. 550+ bed university affiliated teaching hospital. For additional information, contact John W. Heaton, M.D., Chairman, Department of Medicine, MCGH, 2601 East Roosevelt, Phoenix, AZ 85008.

### HELP!

Southern Arizona general practitioner ends her practice full after only 8 months. Now seeking associate interested in all aspects of rural family medicine including ICU and heavy OB. Minimum guarantee, office space, relocation expenses, other fringe benefits. Reply: Nancy Miner, Box 4058, Brentwood, TN 37027 (615) 377-1011

## ESTABLISH YOUR OWN MEDICAL LABORATORY.

Professional service available to help you establish a quality laboratory. Equipment, reagents, quality control, and service tailored to your specific needs. For more information please contact Clinical Laboratory Consultant Services, Inc. P.O. Box 2442, Scottsdale, Arizona 85251. Phone: (602) 998-7982.

## REAL ESTATE

### ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### MEMORIAL MEDICAL OFFICE BUILDING

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

### BEAUTIFUL CONDOMINIUM

Condominios Pilar  
San Carlos Bay, Mexico  
For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

### MEDICAL OFFICE BUILDING

Full Service - 40,000+ sq. ft. (Includes 15,000 sq. ft. Parking Garage) Prestigious location near Scottsdale Memorial Hospital, just off Scottsdale Road. Will build to suit for single investor or investment group. Deluxe suites (all sizes) to your specifications. Pharmacy Laboratory and Radiology space available. Loy R. Clemons, 2519 East Thomas, Phoenix, Arizona 85016 or call (602) 957-3235, evenings and weekends 948-1501.

### PINETOP MOUNTAIN CABIN - FOR RENT

White Mountain summer home. Ideal now for summer-time activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

### COMPLETE, MODERN OFFICE

Equipment, everything from A-Z including electric typewriters, desks, examining tables, hematology analysis, pulmonary function, EKG, refrigerators, waiting room furniture, etc. Replacement value approximately \$50,000. Terms and price negotiable. Call (602) 772-8101 or 772-8998.

### FOR SALE

Gilford Stasar II Spectrophotometer with printer, vacuum apparatus, flow through sample cell. Two years old, excellent condition. Call H.E.L.P. Foundation (602) 941-0841.

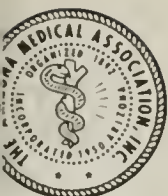
### FOR RENT

Tempe - Medical Suite - 900 sq ft. Three examination rooms, lab., darkroom, bathroom, private office. Reception area and covered parking, close to A.S.U. \$600/mo -utilities included, Call (602) 833-6787 or 831-2497.



## INDEX TO ADVERTISERS

|                                             |                    |                                    |                           |
|---------------------------------------------|--------------------|------------------------------------|---------------------------|
| AirEvac .....                               | 580                | John C. Lincoln Hospital .....     | 649, 650                  |
| The Anesthesia Office, Inc. ....            | 578                | Medical Bookstore .....            | 576                       |
| Arizona Laminating .....                    | 659                | Merrell Dow Pharmaceuticals        |                           |
| Ben-Ora Imaging Ltd. ....                   | 576                | Quinamm .....                      | 637                       |
| Boots Pharmaceuticals                       |                    | Tenuate .....                      | 638, 639                  |
| FEP-Creme, SU-TON, Twin K,                  |                    | Mica Insurance Co. ....            | 657                       |
| Twin K-Cl .....                             | 583, 584, 585, 586 | Mountain Bell .....                | 587                       |
| Burroughs Wellcome                          |                    | National Medical Enterprises ..... | 579                       |
| Neosporin Ointment.....                     | 653                | Van O'Steen & Partners .....       | 587                       |
| Camelback Hospital .....                    | 656                | Phoenix/American Insurance .....   | 660                       |
| Classified Ads .....                        | 659, 660, 661      | Phoenix Memorial Hospital .....    | 659                       |
| Loy R. Clemons, Architect .....             | 659, 660, 661      | Prekup and Associates .....        | 660                       |
| Computed Neurological Scanning Center ..... | 658                | Roche Labs                         |                           |
| Creative Design, Ltd. ....                  | 660                | Valium .....                       | Second Cover, 579         |
| Doctors Central Directory .....             | 660                | Bactrim.....                       | Third Cover, Fourth Cover |
| Eli Lilly & Co.                             |                    | Roswell Bookbinding .....          | 588                       |
| Ceclor.....                                 | 577                | Danny T. Sievert                   |                           |
| HBA Life Insurance .....                    | 579                | Insurance.....                     | 659                       |
| Health Agencies of the West .....           | 588                | Upjohn Company                     |                           |
| House of Mailings.....                      | 659                | Motrin .....                       | 603, 604                  |
| Institute of Human Services .....           | 589                | Valley National Bank .....         | 588                       |
| Louis Jacobs .....                          | 660                | Wickenburg Inn .....               | 588                       |



# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

ISSN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

## SEMINARS IN CONTINUING EDUCATION

### CARDIOLOGY

- Percutaneous Transluminal Angioplasty  
A Comprehensive Overview ..... 680  
*Richard M. Spiegel, M.D.*

- Percutaneous Transluminal Angioplasty  
Of Iliofemoral Arteries ..... 687  
*Michael Vawter, M.D.*

- Percutaneous Transluminal Angioplasty  
(P.T.C.A.) ..... 689  
*Marvin B. Padnick, M.D., et al*

### ENDOCRINOLOGY & METABOLISM

- Euthyroid Sick Syndrome ..... 693  
*William J. Georgitis, M.D., et al*

### GASTROENTEROLOGY & LIVER DISEASE

- Food Borne Disease ..... 697  
*Stephen Glouberman, M.D.*

### MEDICAL GENETICS

- Immunogenetics & Immunology  
I. Key to the Future ..... 699  
*Donald J. Kuban, M.D., M.S., et al*

### ONCOLOGY

- Treatment of Prostatic Carcinoma ..... 701  
*Silvio A. Aristizabal, M.D., et al*

### PEDIATRICS

- The Sexually Abused Child:  
Evaluation and Treatment ..... 705  
*Elaine H. Niggemann, et al*

### PSYCHIATRIC DISORDERS

- Neuroleptic Drugs and  
Tardive Dyskinesia ..... 708  
*Thomas E. Bittker, M.D.*

## EDITORIAL

- The Infertility Clinic ..... 710  
*Diane S. Fordney, M.D., et al*

## CORRESPONDENCE

## MEDICAL HISTORY

- Mastoiditis in Prehistoric  
Arizona Indians ..... 712  
*Leon L. Titche, M.D.*

## ARMA REPORTS

## FUTURE MEETINGS

LIBRARY  
U.C. SAN FRANCISCO

THE LIBRARY  
U. OF CALIF. S.F.  
ACQUISITIONS DIV.  
94143  
SAN FRANCISCO, CA

SEPTEMBER 1981 VOL. XXXVIII, NO. 9



# Feelings vs

*Some people feel that I am misused and overused and that I'm prescribed too often and for too many kinds of problems.*

The FACT is that approximately eight million people, or about 5 percent of the U.S. adult population, will use me during the current year. By contrast, the national health examination survey (1971-1975) found that 25 percent of the U.S. adult population experiences moderate to severe psychological distress. Additionally, studies of patient attitudes revealed that most patients have realistic views regarding the limitations of tranquilizers and a strong conservatism about their use, as evidenced by a general tendency to decrease intake over time. Finally, a six-year, large-scale, carefully conducted national survey showed that the great majority of physicians appropriately prescribe tranquilizers.

*Some people feel that patients being treated with anxiolytic drugs are "weak," can't tolerate the anxieties of normal daily living, and should be able to resolve their problems on their own without the help of medication.*

The FACT is that while most people can withstand normal, everyday anxieties, some people experience excessive and persistent levels of anxiety due to personal or clinical problems. An extensive national survey concluded that Americans who do use tranquilizers have substantial

# Facts

justification as evidenced by their high levels of anxiety. It was further noted that antianxiety drugs are not usually prescribed for trivial, transient emotional problems.

*Some people feel afraid of me because of the stories they've heard about my being harmful and having the potential to produce physical dependence.*

The FACT is that there are thousands of references in the medical literature documenting my efficacy and safety. Extensive and painstakingly thorough studies of toxicological data conclude that I am one of the safest types of psychotropic drugs available. Moreover, I do not cause physical dependence if the recommended dosage and therapeutic regimen are followed under careful physician supervision. However, I can produce dependence if patients do not follow their physicians' directions and take me for prolonged periods, at dosages that exceed the therapeutic range. Patients for whom I have been prescribed should be cautious about their use of alcohol because an additive effect may result.

*Many of the most knowledgeable people feel that I became the No. 1 prescribed medication in America because no other tranquilizer has been proven more effective. Or safer.*

The FACT is they are right.

For a brief summary of product information on Valium (diazepam/Roche) , please see the following page. Valium is available as 2-mg, 5-mg and 10-mg scored tablets.



# Valium® diazepam/Roche

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology; spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication. Abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other anti-depressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d., alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d., adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

**Supplied:** Valium® (diazepam/Roche) Tablets, 2 mg, 5 mg and 10 mg—bottles of 100 and 500. Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10. Prescription Paks of 50, available in trays of 10.

## MEDICAL BOOKSTORE



The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

### MEDICAL BOOKSTORE

College of Medicine  
Arizona Health Sciences Center  
Tucson, Arizona 85724  
Phone: 626-6669

*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

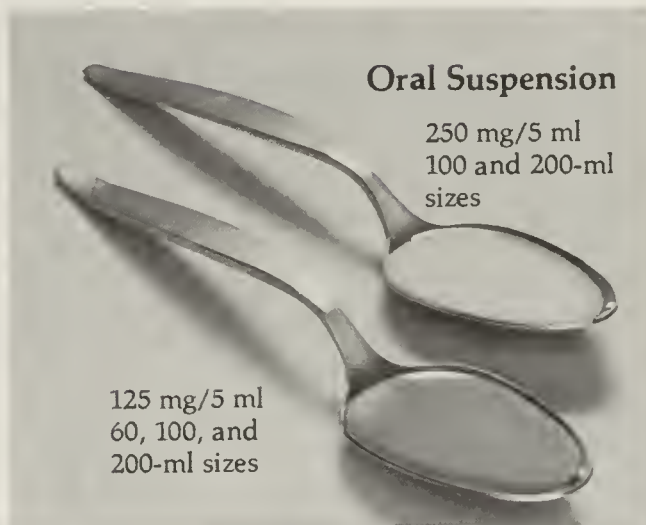
*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.



Roche Laboratories  
Division of Hoffmann-La Roche Inc.  
Nutley, New Jersey 07110

# easy to take



# Keflex®

## cephalexin

Additional information available  
to the profession on request.



**Dista Products Company**  
Division of Eli Lilly and Company  
Indianapolis, Indiana 46285  
Mfd. by Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630



# Another good reason to insure with **MICA** is YOUR ownership of **MICA**.

The Company is owned by the physicians who are MICA policyholders.

MICA exists for the benefit of the physicians of Arizona. Its basic objective is to provide a stable and continuous medical malpractice insurance facility charging reasonable rates for the coverages offered.

For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402

**MICA MICA MICA**

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association

# Local families find young adult treatment program helps solve serious problems.

The period from approximately 18 to 25 years of age can be the most difficult of a lifetime.

It is a time of change, decision-making and responsibility-taking. Young adults are pulled in every direction, and many are not prepared for the sudden transition from childhood to adulthood.

Confusion, anxiety, a sense of failure and depression are overwhelming experiences for the young adult, and the use of drugs and alcohol only make things worse. As a result, the young adult is often immobilized by uncertainty.

At Scottsdale Camelback Hospital, our Young Adult Treatment Program works closely with such young people to stabilize their emotions and alleviate symptoms. The program lays a foundation for growth and development. Values are clarified. Career goals are examined.

The program has been instrumental in solving serious problems for a number of families faced with the need to assist a young adult during this trying period. If such a problem is occurring in your family, you are urged to consult your physician about our program, or to call Scottsdale Camelback Hospital for further details.

Camelback Hospitals are among the leading psychiatric centers of the Southwest. An open medical staff of more than 60 psychiatrists, as well as psychologists, psychiatric nurses, social workers and activity therapists provide 24-hour care. Camelback Hospitals and Camelback Mental Health Center are fully accredited and licensed by the State of Arizona.

There are specialized programs for adolescents (13-17 years of age) at our Phoenix Camelback Hospital.

For further information, consult your physician or call us today.



**SCOTTSDALE CAMELBACK HOSPITAL**

7575 E. Earll Drive Scottsdale, AZ 85251 Phone: 941-1108

*Doctor —  
This newspaper ad  
has been scheduled  
in leading Valley  
newspapers.  
Daniel W. Capps,  
President Camelback  
Hospitals*





## We've got the prescription for your communications needs.

Mountain Bell has trained a team of specialists in the medical profession. Because doctors and medical professionals have unique communications needs. And their own set of problems.

Our medical specialists understand those problems. They study your daily patient load, staff requirements, and information management areas. They help implement mechanization through time-sharing of computer terminals. And design voice and data communications systems tailored to fit a private practice, or the collective needs of clinics and group practices.

One of the systems we've developed for you is the Horizon® communications system. In addition to the advanced calling features available on larger, more costly PBX equipment, the Horizon system gives you Dial Dictation and Loudspeaker Paging access. Plus Intercom and Speakerphone capabilities. So you minimize time spent by support personnel on placing and receiving phone calls. While speeding exchange of information.

The Horizon communications system is just one example of how our team members can meet the communications needs of your practice. But they can tell you more. Because they've taken the time to learn the medical profession. And they're backed by all the resources of the Bell System.

Let the Mountain Bell specialists in the medical profession give you the remedy to your communications needs.

Call toll-free 1-800-525-2323 (in Colorado, call 1-800-332-2351). Mountain Bell.

\* Registered Trademark of AT&T Company

### The knowledge business



# COMPUTED TOMOGRAPHY OF THE HEAD



## CNS Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207 •  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

## YOU WORKED HARD



FOR THAT  
DIPLOMA..

why not have it  
laminated?

it will last a lifetime....

## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.

7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

## Saddle up for a SUPER TWO days of tennis!

"Super Two" is the perfect tennis clinic for your busy lifestyle. In addition to two relaxing days and nights of Mobil Four Star Resort luxury in the romantic Old West of the Wickenburg Inn, Super Two includes five hours of instruction, court time, all meals and horseback riding. The Wickenburg Inn Tennis Center features 11 acrylic courts and a guest-teaching pro ratio of 5 to 1 or less. It's just what your game needs — a Super Two days of tennis!

See your Travel Agent or call 1-884-7811



**THE WICKENBURG INN**  
Tennis and Guest Ranch

P.O. Box P Dept AM  
Wickenburg, Arizona 85352  
(602) 684-7811

| Rates per person from |       |       |
|-----------------------|-------|-------|
|                       | Oct   | Sept  |
| Thru Oct              | \$130 | \$145 |
| Nov & Jan             | 168   | 194   |
| Dec & Feb-Apr         | 190   | 202   |

2 Day 2 Night Tennis Clinic  
Rates include 5 hours of  
instruction, tennis, all  
meals, horseback riding.  
Call for 7-day clinic rates.





# sponsored group insurance

As a member of the Arizona Medical Association, you can take advantage of life, health and accident insurance selected to meet your needs, with the savings available through group insurance.

The Arizona Medical Association has provided its members with sponsored insurance programs for over 25 years.

The programs currently available are: disability, term life (for members and their spouses), defendant's reimbursement, accidental death and overhead expense.

Companies and policies are selected to provide coverage and service that meets a professional's needs and standards.

The Arizona Medical Association provides supervision of the administration of these programs as needed to insure that they continue to merit your support.

## ARIZONA MEDICAL ASSOCIATION



life, health & accident insurance

administered by

HEALTH AGENCIES OF THE WEST, INC.

local service by

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200, Phoenix, Arizona 277-6672  
or 630 Craycroft, Tucson, Arizona 85711 745-0793





For the pain of osteoarthritis  
the proven power of

**Motrin<sup>®</sup>**  
ibuprofen, Upjohn  
**600 mg Tablets**  
One tablet t.i.d.

Please see the following page for a brief summary of prescribing information.

**Upjohn**



## Motrin<sup>®</sup> Tablets (ibuprofen, Upjohn)

**Contraindications:** Individuals hypersensitive to it, or with the syndrome of nasal polyps, angioedema, and bronchospastic reactivity to aspirin, iodides, or other non-steroidal anti-inflammatory agents. Anaphylactoid reactions have occurred in such patients.

**Warnings:** Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Ulceration, perforation, and bleeding may end fatally. An association has not been established. *Motrin* should be given under close supervision to patients with a history of upper gastrointestinal tract disease, only after consulting ADVERSE REACTIONS.

In patients with active peptic ulcer and active rheumatoid arthritis, nonulcerogenic drugs, such as gold, should be tried. If *Motrin* must be given, the patient should be under close supervision for signs of ulcer perforation or gastrointestinal bleeding.

Chronic studies in rats and monkeys have shown mild renal toxicity characterized by papillary edema and necrosis. Renal papillary necrosis has rarely been shown in humans treated with *Motrin*.

**Precautions:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue *Motrin* and the patient should have an ophthalmologic examination, including central visual fields and color vision testing. **Fluid retention and edema** have been associated with *Motrin*; use with caution in patients with a history of cardiac decompensation or hypertension. *Motrin* is excreted mainly by the kidneys. In patients with renal impairment, reduced dosage may be necessary. Prospective studies of *Motrin* safety in patients with chronic renal failure have not been done. *Motrin* can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and those on anticoagulant therapy. Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain, or edema. To avoid exacerbation of disease or adrenal insufficiency, patients on prolonged corticosteroid therapy should have therapy tapered slowly when *Motrin* is added. The antipyretic, anti-inflammatory activity of *Motrin* may mask inflammation and fever.

**Drug interactions:** *Aspirin*: used concomitantly may decrease *Motrin* blood levels.

*Coumarin*: bleeding has been reported in patients taking *Motrin* and coumarin.

**Pregnancy and nursing mothers:** *Motrin* should not be taken during pregnancy nor by nursing mothers.

### Adverse Reactions

The most frequent type of adverse reaction occurring with *Motrin* is gastrointestinal, of which one or more occurred in 4% to 16% of the patients.

#### **Incidence Greater Than 1% (but less than 3%)—Probable Causal Relationship**

**Gastrointestinal:** Nausea,\* epigastric pain,\* heartburn,\* diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of GI tract (bloating and flatulence); **Central Nervous System:** Dizziness,\* headache, nervousness; **Dermatologic:** Rash\* (including maculopapular type), pruritus; **Special Senses:** Tinnitus; **Metabolic/Endocrine:** Decreased appetite; **Cardiovascular:** Edema, fluid retention (generally responds promptly to drug discontinuation; see PRECAUTIONS).

#### **Incidence Less Than 1%—Probable Causal Relationship\*\***

**Gastrointestinal:** Gastric or duodenal ulcer with bleeding and/or perforation, gastrointestinal hemorrhage, melena, gastritis, hepatitis, jaundice, abnormal liver function tests; **Central Nervous System:** Depression, insomnia, confusion, emotional lability, somnolence, aseptic meningitis with fever and coma; **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme, Stevens-Johnson syndrome, alopecia; **Special Senses:** Hearing loss, amblyopia (blurred and/or diminished vision, scotomata, and/or changes in color vision) (see PRECAUTIONS); **Hematologic:** Neutropenia, agranulocytosis, aplastic anemia, hemolytic anemia (sometimes Coombs' positive), thrombocytopenia with or without purpura, eosinophilia, decreases in hemoglobin and hematocrit; **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure, palpitations; **Allergic:** Syndrome of abdominal pain, fever, chills, nausea and vomiting, anaphylaxis, bronchospasm (see CONTRAINDICATIONS); **Renal:** Acute renal failure in patients with preexisting, significantly impaired renal function, decreased creatinine clearance, polyuria, azotemia, cystitis, hematuria; **Miscellaneous:** Dry eyes and mouth, gingival ulcer, rhinitis.

#### **Incidence Less Than 1%—Causal Relationship Unknown\*\***

**Gastrointestinal:** Pancreatitis; **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities, pseudotumor cerebri; **Dermatologic:** Toxic epidermal necrolysis, photoallergic skin reactions; **Special Senses:** Conjunctivitis, diplopia, optic neuritis; **Hematologic:** Bleeding episodes (e.g., epistaxis, menorrhagia); **Metabolic/Endocrine:** Gynecomastia, hypoglycemic reaction; **Cardiovascular:** Arrhythmia (sinus tachycardia, sinus bradycardia); **Allergic:** Serum sickness, lupus erythematosus syndrome, Henoch-Schönlein vasculitis; **Renal:** Renal papillary necrosis.

\*Reactions occurring in 3% to 9% of patients treated with *Motrin*. (Those reactions occurring in less than 3% of the patients are unmarked.)

\*\*Reactions are classified under "Probable Causal Relationship" (PCR) if there has been one positive rechallenge or if three or more cases occur which might be causally related. Reactions are classified under "Causal Relationship Unknown" if seven or more events have been reported but the criteria for PCR have not been met.

**Overdosage:** In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine, so alkaline diuresis may be beneficial.

**Dosage and Administration:** Do not exceed 2400 mg per day. If gastrointestinal complaints occur, administer with meals or milk.

Rheumatoid arthritis and osteoarthritis, including flares of chronic disease: Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d. Mild to moderate pain: 400 mg every 4 to 6 hours as necessary for relief of pain.

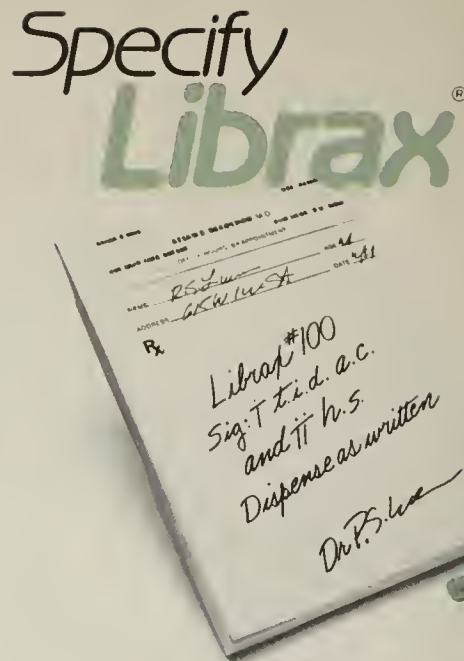
**Caution:** Federal law prohibits dispensing without prescription.

**Upjohn**

THE UPJOHN COMPANY  
Kalamazoo, Michigan 49001 USA

MEDB-5-S

July 1981



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows: "Possibly" effective as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis. Final classification of the less-than-effective indications requires further investigation.

**Contraindications:** Glaucoma, prostatic hypertrophy, benign bladder neck obstruction, hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium<sup>®</sup> (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage, withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.

As with all anticholinergics, inhibition of lactation may occur.

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially, increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression, suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants, causal relationship not established.

**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated, avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction, changes in EEG patterns may appear during and after treatment, blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.



Roche Products Inc.  
Manati, Puerto Rico 00701





# IN THE G.I. DISORDERS

## of Irritable Bowel Syndrome\* and Peptic Ulcer\*

Librax...the only G.I. medication that provides the action of Librium® (chlordiazepoxide HCl) to relieve the accompanying anxiety found in some patients, plus the action of Quarzan® (clidinium bromide) to reduce colonic spasm and gastric hypersecretion.

*Specify*  
*Adjunctive*  
**Librax®**

Each capsule contains 5 mg chlordiazepoxide HCl  
and 2.5 mg clidinium Br.

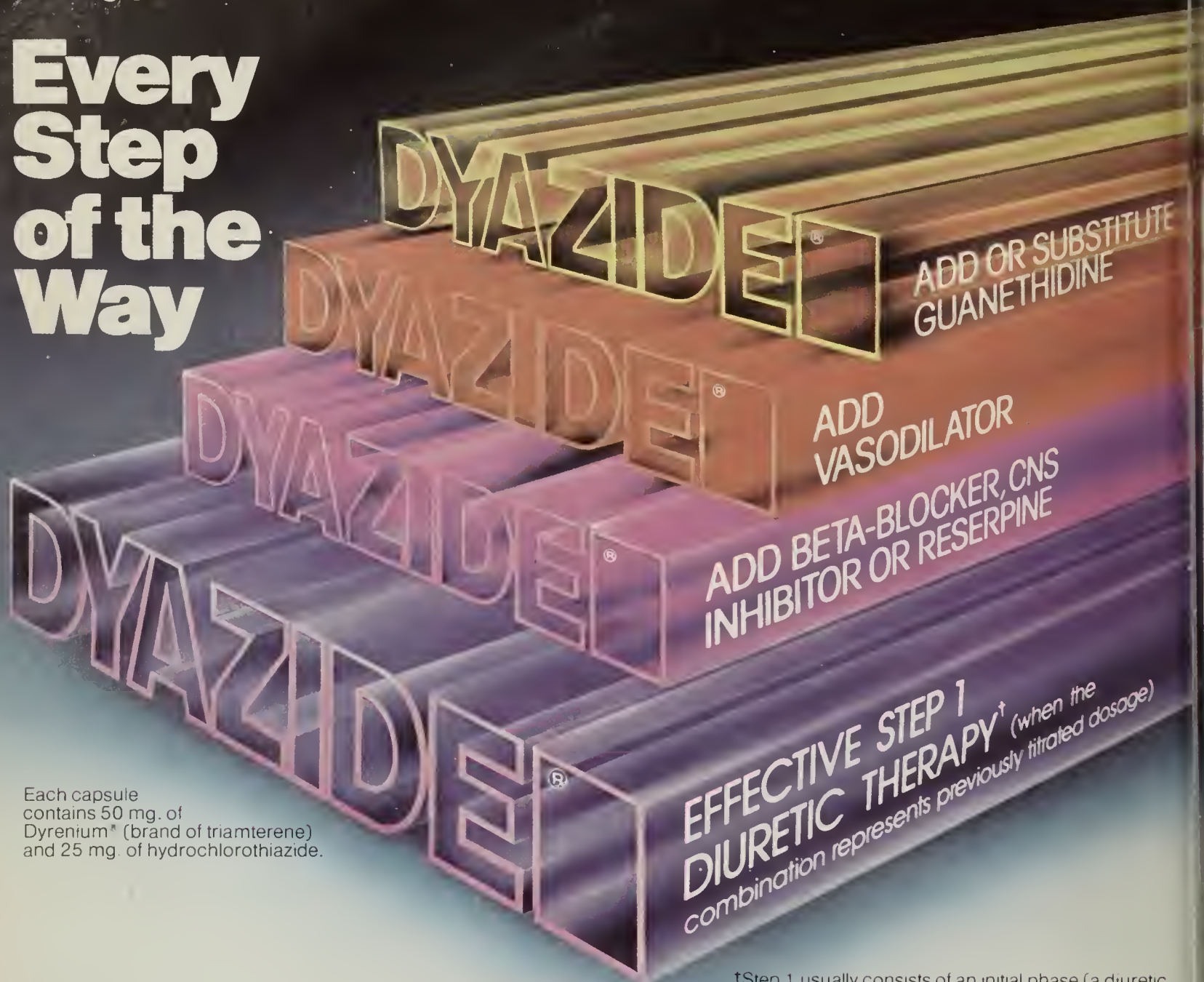
*Antianxiety/Antisecretory/  
Antispasmodic*

\*Librax has been evaluated as possibly effective for these indications. Please see summary of prescribing information on facing page.



# In Hypertension\*...When You Need to Conserve K

## Every Step of the Way



Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

†Step 1 usually consists of an initial phase (a diuretic alone), a titration phase (dosage adjustment and/or addition of a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent), and maintenance phase (a diuretic alone or in combination with a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent).

Serum K<sup>+</sup> and BUN should be checked periodically (see Warnings).

Before prescribing, see complete prescribing information in SK&F Co. literature or PDR. The following is a brief summary.

#### \* WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K<sup>+</sup> levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K<sup>+</sup> intake. Associated widened QRS complex or arrhythmia requires prompt additional therapy. Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and

triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Watch for signs of impending coma in severe liver disease. If spironolactone is used concomitantly, determine serum K<sup>+</sup> frequently, both can cause K<sup>+</sup> retention and elevated serum K<sup>+</sup>. Two deaths have been reported with such concomitant therapy (in one, recommended dosage was exceeded, in the other, serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis and aplastic anemia have been reported with thiazides. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased

dietary intake of potassium-rich foods. Corrective measure should be instituted cautiously and serum potassium level determined. Discontinue corrective measures and Dyazide should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. Dyazide should be withdrawn before conducting tests for parathyroid function.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth, anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions, nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances. Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and, rarely, allergic pneumonitis have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis and of impotence have been reported with the use of Dyazide, although a causal relationship has not been established.

**Supplied:** Bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

**SK&F CO.**  
a SmithKline company  
Carolina, PR 00630



# Why do our clients Send us Champagne?

*Why? Because in the world of Anesthesia everyone is grateful for service beyond the call of duty.*

*And that's what we're all about.*

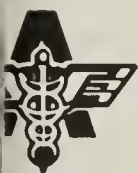
*Yes, It's true we do billing. Last year alone, We sent out more that \$7,000,000.00 In new Anesthesia Bills.*

*Yes, We do put Anesthesiologists in touch with Major Groups. And Yes, We stay in touch with Hospitals who need Anesthesia services.*

*But that's only part of the story. We also act as Consultants. We know the Anesthesia Business. We know Arizona Hospitals and Groups. And we have that "Sixth Sense" That tells us when a situation is sound.*

*At The Anesthesia Office, Inc. We stay with every Anesthesiologist, Using our talents to insure his success and satisfaction in private practice.*

*And that's why we always get Champagne.*



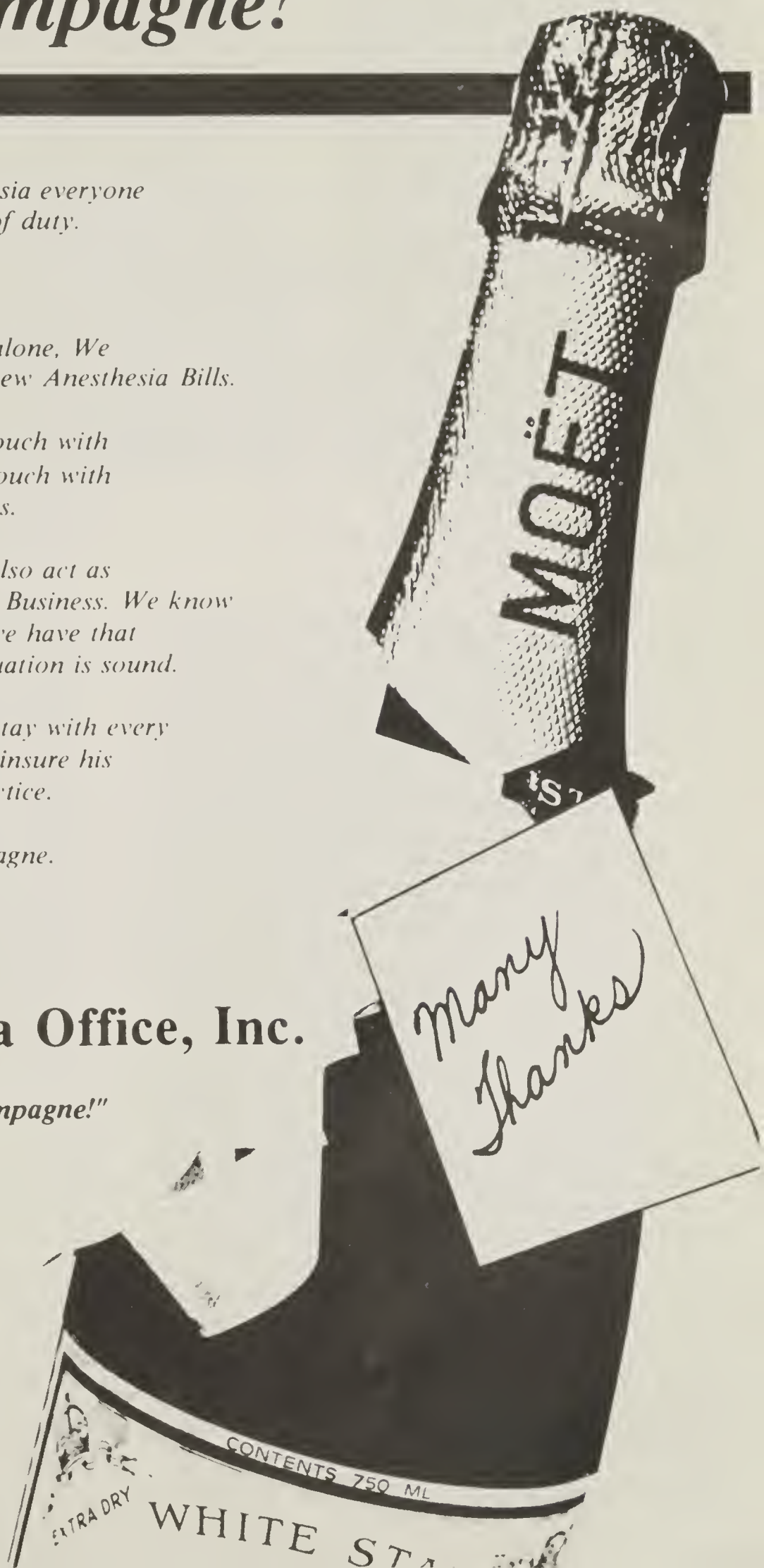
## The Anesthesia Office, Inc.

*"The Office That Earns Their Champagne!"*

### Main Office

Post Office Box 39429  
Phoenix, Arizona 85069

(602) 242-1908







# Percutaneous Transluminal Angioplasty

## A Comprehensive Overview

Richard M. Spiegel, M.D.

Editor:  
Kenneth B. Desser, M.D.

Percutaneous transluminal angioplasty (PTA or "the Dotter procedure") is the non-surgical, fluroscopically guided dilatation of vascular stenoses or recanalization of occlusions using modified diagnostic angiographic catheters and techniques. In selected cases, it offers a safe, reliable alternative to surgical bypass procedures.

The method was first described and developed by Charles Dotter and Melvin Judkins at the University of Oregon over sixteen years ago,<sup>1</sup> but was not widely applied in this country until recently. It was used, however, extensively and successfully in Europe and an important modification, devised by Andreas Gruntzig several years ago working in Zurich, sparked renewed interest and enthusiasm in the United States. In this country, a veritable explosion of activity followed his 1978 presentation of results, so that, in less than three years, radiologists at most major medical centers and many community hospitals throughout the nation have developed expertise. Both of the major Radiology specialty journals have devoted issues over the past year to reports of series performed at various institutions.

The role of PTA in Arizona has been relatively slow to develop, first employed here just two years ago and still rather sporadic in usage. This communication is therefore aimed at explaining the procedure, what it can do, and how it compares with, or contributes to standard surgical approaches so that clinicians can make a reasoned approach to its more systemic utilization.

From: Department of Radiology, Good Samaritan Hospital, Phoenix, Arizona. Reprint requests to Dr. Spiegel at present address: Department of Radiology, Scottsdale Memorial Hospital, 7400 East Osborn Road, Scottsdale, Arizona 85251

### Principles and Techniques

The basic principles and techniques outlined in Dotter's initial work are in large measure still valid. He felt that most atheromatous plaques are relative maleable, compressible lesions, not "rock-hard." He demonstrated that once a guidewire is passed through stenosis or occluded segment, progressively larger catheters can be passed over the guidewire to reform, flatten or "pancake" the offending plaque. When the catheter is withdrawn, without actually removing any material or embolizing distally, a widened channel remains behind in a fashion analagous to plunging an awl into a wedge of cheese and withdrawing it, or a nail into a block of wood. There may be some actual loss of mass, as Dotter reported transiently elevated serum lipids (presumably "squeezed out" of the plaque) in the femoral vein during distal arterial angioplasty. Recent work has suggested that there is also some true dilatation of the entire vessel wall during most procedures associated with linear "cracks" in the intima and stretching of the media. This intimal disruption leads to the irregular vessel contour, seen frequently immediately after a successful procedure, that usually has flattened and become more smooth, secondary to increased flow and intrinsic reparative mechanisms when patients are restudied at a later date.

Although balloon-catheter combinations had been tried previously, Gruntzig's advance was to develop a balloon that would expand to a sausage shape configuration at a fixed diameter, maintaining the width at high internal pressures (up to 6 atmospheres) without further expansion, and mating this balloon to a soft, flexible polyethylene catheter. The advantages are various including: a) the dilatation width is no longer limited by catheter size, as small catheters can hold a balloon capable of dilating a large vessel; b) the major vector of pressure as the balloon expands is axial, directed against the plaque, obviating the possible "snow-plow" effect inherent in pushing progressively larger stenotic catheters through a narrow region with the chance that part of the lesion or intima could be displaced ahead of the catheter tip; c) the flexibility of the catheter allows a variety of approaches to given lesion (ipsilateral femoral, contralateral femoral, axillary) and allows access to virtually any vessel routinely catheterized for diagnostic studies. While the bulk of world-wide experience has been in the peripheral vascular tree (iliac and femoral systems), the method is increasingly used in the renal and coronary arteries, in various arterial and venous grafts, and the visceral branches as well. Not even the brachiocephalic circulation is sacrosanct.

### Representative Cases

#### Case 1:

F. D. was a 60-year-old white male diabetic, controlled with oral hypoglycemics and a long term smoker, with a two month history of increasing claudication in the right lower extremity. Most of the discomfort was in upper thigh, hip and buttock, progressive to the point that he experienced pain at 40-50 yards. On examination, he



Figure 1



Figure 2



Figure 3

femoral or distal pulses were palpable on the right, pulses on left were normal. The patient also had a history of five previous abdominal laparotomies for complications of diverticulitis with resultant large epigastric ventral hernia.

The patient was admitted to Good Samaritan Hospital in July 1979 and non-invasive lab studies revealed "aorto-femoral occlusive disease with right iliac artery occlusion." Diagnostic angiogram was performed demonstrating a severe, very localized right common iliac artery stenosis just above the iliac bifurcation with the internal iliac artery filling in retrograde fashion from collaterals. (Figure 1) No other significant peripheral vascular lesions were demonstrated.

Angioplasty was performed several days later via the ipsilateral femoral artery, punctured successfully under fluoroscopic control despite the absent pulse. Prior to the dilatation, with a catheter above the lesion passed from the opposite femoral, a 55 mm systolic gradient was measured across the lesion. Following dilatation, the gradient disappeared completely and radiographic correction of the stenosis was demonstrated with antegrade filling of the internal iliac. (Figure 2) The patient was placed on low daily dose of aspirin as a "platelet inhibitor," and was up and about eight hours after the procedure with normal femoral, popliteal, and pedal pulses. The following day, after reexamination in the non-invasive lab showed normal pressures, he underwent repair of the ventral hernia. Within a week, he was walking two miles without claudication and pulses and pressures remain normal after twenty-four month follow-up.

#### Comment:

This case offers probably the optimal presentation for angioplasty: significant claudication caused by an isolated short iliac stenosis. This is technically the most easy vessel to approach and dilate, and statistically has the best expectation of both short and long term success. The procedure is done under the same local anesthesia used for arteriograms and entails simply an overnight hospital stay (Dotter is performing some on an outpatient basis). The patient's alternative therapy would be an aorto-femoral bypass with its accompanying morbidity and mortality rates, hospital stay, and cost.

#### Case 2:

H. G. was a 73-year-old Puerto Rican hypertensive female admitted to Columbia-Presbyterian Medical Center, New York, in May 1977; with rest pain in the left foot for one month after years of bilateral claudication. Femoral pulses were intact but no distal pulses were palpated. Angiography revealed total occlusion of the proximal popliteal artery on the left with reconstitution of the mid portion of the vessel after a 10 cm gap and poor runoff. (Figure 3) Surgical correction was not felt to have a good chance of success and probable eventual amputation was being considered.

Angioplasty was successfully performed on that admission, using direct antegrade approach, with excellent radiographic appearance (Figure 4) and relief of symptoms in that leg. Patient was discharged the following day on no medications. She returned three months later with incipient gangrene which was





Figure 4

secondary to re-occlusion of the vessel, several centimeters distal to the initial dilatation. She was redilated by another angiographer and placed on aspirin and coumadin for six months. Signs of acute ischemia resolved, and she has done well with some claudication but no rest pain in the left foot for over three and one-half years. In August of 1980, she underwent angioplasty of a right common iliac stenosis which was not present in 1977.

#### Comment:

This is obviously a much less optimal case for PTA — a relatively long total occlusion with poor runoff. Because of the high risk of surgical alternatives, PTA was attempted and the patient has survived now almost four years, with a useful and for the most part pain-free extremity. In addition, this case emphasises that the dilatation can be repeated after failure or recurrence without difficulty, if necessary, and at least suggests that some form of platelet inhibition or anticoagulation is helpful in peripheral lesions with low flow. Note should also be made that the small muscular collaterals are all preserved by the transluminal approach. Insertion of grafts frequently entails tying off some of these vessels.

#### Case 3:

H. F. was a 59-year-old hypertensive white male with intermittent claudication in the right lower extremity and right buttock; appearing with ambulation of approximately 150-200 feet and bilateral lower extremity paresthesias and numbness. He had a 60 pack year smoking history and non-invasive vascular studies suggested bilateral aorto-femoral and superficial femoral occlusive disease, right greater than left. He was admitted to Good Samaritan Hospital in June 1980 and



Figure 5



Figure 6

underwent angiography revealing right common iliac, left common iliac, and left external iliac stenoses, moderate to severe in degree, (Figure 5) and a short segment occlusion at the right femoral popliteal junction. (Figure 6)

He was readmitted two weeks later for angioplasty. From a left femoral puncture a balloon catheter was placed over the bifurcation down the right leg and the distal superficial femoral lesion was dilated. After exchange for a larger balloon, the catheter was gradually pulled back, and the right common iliac, then both left iliac stenoses were sequentially dilated with immediate symptomatic improvement. (Figure 7,8,9) He was placed on a three month course of Coumadin and has been essentially asymptomatic since.

Table 1  
Renin Assay\* - Case 4

|                  | Left Renal | Right Renal | Ratio |
|------------------|------------|-------------|-------|
| VA Pre-op        | 19.7       | 10.1        | 2:1   |
| GSH Pre-op       | 12.3       | 1.3         | 9.5:1 |
| GSH Post-op      | 1.7        | 1.6+        | 1:1   |
| VA 8 mo. Post-op | 4.2        | 3.2         | 1.3:1 |

\*values in ng/cc/hr.

#### Comment:

This case illustrates that a large number of stenoses can be alleviated at one "sitting" with a single percutaneous arterial puncture. It also demonstrates the technical flexibility available with the relatively soft Gruntzig catheters allowing dilatations from the contralateral side. The antegrade puncture is often the technically most difficult portion of a traditional Dotter procedure, and although still frequently necessary for difficult lesions in the superficial femoral or below, the balloon catheters often offer an easier approach.

#### Case 4:

R. D. was a 62-year-old white male admitted to the V. A. Hospital in August of 1979 with chronic angina, diabetes, chronic obstructive pulmonary disease and marked hypertension despite medications. He was suffering from intermittent headaches, diaphoresis, dizziness, and weakness. Physical examination revealed fundoscopic changes of chronic hypertension and blood pressure ranging from 240-200 over 120-100 on a medication regimen that included 120 mg Inderal q.i.d.; 6 mg Minipress t.i.d.; 100 mg Duiril b.i.d.; 20 mg Serax t.i.d., and occasional nitroglycerine and Librium. Angiography revealed a very tight relatively long smooth proximal left renal artery stenosis (Figure 10), and selective renal vein renin samples showed a 2:1 left to right ratio (see Table 1). He was deemed a poor surgical risk and was transferred to Good Samaritan Hospital for angioplasty.

Repeat renin determinations immediately prior to PTA were very high with an almost 10:1 ratio. While traversing the narrowed segment was not difficult, dilating the stenosis was. Repeated inflations were performed, but the radiographic results were disappointing (Figure 11), although the minimal diameter appeared to have been doubled. Nevertheless, the patient became normotensive following the procedure and renin samples obtained thirty minutes after the dilatation showed a remarkable drop to a 1:1 ratio. He was discharged on 80 mg Inderal q.i.d. and off all other anti-hypertensive medications, completely relieved of symptoms. He remained normotensive several weeks later, but on a three month follow-up, while still asymptomatic, was noted to have a blood pressure 150-175 over 90-92 and a ten pound weight gain, at which time 50 mg Diuril once a day was begun.



Figure 7

Repeat renins at six months had a 1.3:1 ratio and he remains in good control more than a year and a half after P.T.A.

#### Comment:

The objective in renal angioplasty can not always be to cure hypertension, but often to make it manageable, as in this case. This case also demonstrates that the objective in all angioplasties is to increase flow, not to obtain normal appearing vessels. Most critical lesions lie on the steep portion of a flow curve where relatively modest increases in vessel diameter can shift a stenosis into the hemodynamically insignificant range. Complications seem frequently to occur when trying to make an adequate dilatation "prettier."

The results from renal angioplasty can be quite dramatic and rapid and hypotension is a concern immediately after the procedure. These patients deserve close follow-up as restenosis can occur which responds well to repeat dilatation.

#### Discussion

From the above representative cases and comments, it is evident that percutaneous transluminal angioplasty represents a potential alternative to surgical correction of various vascular stenoses and occlusions. P.T.A. can offer several real advantages. Significant savings can be made for both the patient and the community in terms of money and time lost by avoiding general anesthesia, recovery room and intensive care units, one week to two weeks hospital stay and possible home convalescence. The morbidity and mortality inherent in vascular surgery in varying degrees can also be avoided. Furthermore, if P.T.A. should fail, it can usually be repeated without additional problems or if necessary





Figure 8



Figure 9



Figure 10

surgical corrections can still be performed with little increased risk or difficulty. The same cannot be said if a surgical procedure fails.

The limitations of P.T.A. vary depending on the vessel to be opened. In general, the technique works best in the dilatation of short segment stenoses, with total occlusions more difficult technically to recanalize initially and having a poorer rate of long term patency. Calcified lesions are typically more difficult to dilate. Also, the greater the size of or flow through the vessel, the better will be long term patency. As in bypass surgery, the poorer the runoff, the more disappointing the results.

#### Complications:

Complications are in the first part similar to those encountered in routine angiographic procedures, particularly at the puncture site where hematomas, thrombosis and false aneurysms can occur. Hematomas have been more of a problem than in diagnostic studies because of the larger catheters used, holding balloon tips at times difficult to deflate completely, and because of the greater use of anticoagulants during the procedure.

Peripheral embolization was the most feared possible complication, but universally has been of less significance than anticipated. While review of the literature<sup>2-10</sup> suggests an overall incidence, not considering vessel or type of lesion, of 3%-5%, the great majority of these have been asymptomatic or have resolved spontaneously. In those that have been clinically significant, surgical Fogarty embolectomy has generally been successful. Nevertheless, emboli still represent a potential threat that could cause worsening of clinical symptoms as a result of angioplasty.

Perforation of the vessel, particularly with a guidewire, during dilatation is more common than embolization, but is not clinically important in the femoral-popliteal region where the "in to out" mechanism of puncture and the surrounding fascial sheets and muscle planes prevent any significant hematoma. This would be of more concern in the iliac vessels and is one of the reasons why P.T.A. is not recommended in total occlusions in this location.

Severe arterial spasm, secondary to contact with guidewire or catheter, can be a serious problem in the distal popliteal and below, as evidenced by the European literature, but has not been encountered to any significant extent in this country; we having benefited by their experience is using prophylactic vasodilators.

Thrombotic occlusion at the dilatation site is probably the most common complication and cause of failure. It can occur acutely or over the first few weeks or months after the procedure. Fortunately, although the thrombosis frequently extends proximally in the involved vessel, it characteristically does not propagate distally, as is commonly seen in graft failure. For this reason the clinical picture is usually not worsened, and the system is still amenable to attempt a re-dilatation or surgical bypass. In acute thrombosis during angioplasty, recanalization has been demonstrated with infusions of urokinase or streptokinase.

In a recent joint study reported by Zeitler, comprising over 1,400 patients from several European clinics<sup>10</sup> (including a significant number of cases that do not fit our criteria of good candidates for P.T.A.), a 2.5% complication rate requiring surgical intervention after angioplasty was noted. While not all emergent in nature,



Figure 11

reinforces the need for a "team" approach with primary physician, vascular surgeon and radiologist operating in evaluation and management of patient. **Results:**

The improving success rates with P.T.A. is related to advances in equipment and technique, but also in great measure to patient selection. When most university series were begun, both here and abroad, the patients were generally "surgical rejects," frequently in whom amputations were planned. While P.T.A. certainly can be attempted in "limb salvage" cases, prior to amputation where runoff is too poor to sustain a graft, these cases should not be considered in the same category with more favorable lesions when evaluating results. Similarly, while it makes little difference in graft patency if surgery is performed on a patient with a focal high grade stenosis versus a long segment vessel occlusion, we have learned that it makes a significant difference in P.T.A. results.

As mentioned above, focal iliac vessel stenoses are generally the most favorable for P.T.A. both because of the positive results and the alternative therapy. Review of the recent literature<sup>4-10</sup> shows an initial success rate in these cases of about 95% of which roughly 90% will retain their patency after two to three years. An overnight stay is all that is required and the patient can resume normal activities the day following the procedure. Alternative aorto-iliac bypass surgery has its inherent cost, time loss, morbidity, and mortality of up to five percent. A significant incidence of impotency, secondary to interruption of sympathetic fibers in the pelvis, is also associated with surgery, but avoided in the transluminal approach.

In clinical practice, much more common than an isolated iliac stenosis lesion the primary cause of

symptomatology, but the former lesion threatening the inflow rate needed to keep a graft patent. Increasingly frequent is a two stage procedure where P.T.A. is performed on a proximal lesion, followed by femoral-popliteal bypass — again emphasizing the need for a "team approach."<sup>11</sup> At several centers, totally occluded iliac vessels have been successfully recanalized, but the general concensus is that these are better treated with surgery.

The same can be said of long segment (greater than 10 cm) occlusions of the superficial femoral-popliteal system. Short segment occlusions can be opened more successfully here and are included with simple stenoses in statistics of this region. Initial success rates are now in the 85% range with 85% of these remaining open at least two to three years. These figures are comparable with bypass procedures, which are much more benign in this region than those discussed above. P.T.A. remains an attractive alternative, particularly for those patients who want to avoid general anesthesia or surgery, and for those in who an appropriate vein for grafting is not available.

Experience with dilating deep femoral arteries is much more limited, but results appear similar to procedures in the superficial femoral. Reported cases involving the vessels below the knee are also not as numerous, but here success rates appear to fall off. Most commonly, dilatations here are in diabetics, and while most stenoses can be opened (usually with simple catheter rather than balloon) they tend to close down more frequently and rapidly. Unfortunately there is frequently no surgical alternative. Several cases have been reported about the rapid healing of chronic ischemic foot ulcers after P.T.A. of calf vessels.

Renal angioplasty for hypertension is a more recent application that is increasing rapidly in number with encouraging results. Focal stenoses have been dilated successfully in over 90% of those attempted.<sup>12,13</sup> These successes have been split about evenly between "cures," where antihypertensive medications are no longer needed, and "easier to manage" where fewer medications in lower doses are required (as in Case 4). The type of lesion has significant impact on results. Fibromuscular disease, particularly medial fibroplasia, the most common form, is an optimal process for P.T.A. because: a) once traversed, it is easy to dilate; b) the process frequently extends into intrarenal branches where surgical approaches generally can not reach; and c) the most frequent surgical correction consists basically of an operative "open" dilatation, rather than grafting. In patients of this type, it is difficult to understand why P.T.A. should not always be attempted initially. Atherosclerotic lesions can of course be opened almost as well, but occasionally the dilatation is too late to improve the hypertension, as long standing renal vascular lesions can lead to irreversible arteriolar nephrosclerosis.

Theoretically, angioplasty will only improve "renin dependent" hypertension or those with a renin



dependent component. However, because of the greater technical ease of the procedure, and its low morbidity compared with surgical bypass, P.T.A. should be considered in selected cases with appropriate history and angiographic findings even when selective renin samples are not conclusive.

The lesions with the poorest results are those involving the orifice of the renal artery associated with a large aortic plaque. Apparently, while the balloon can often be adequately inflated, the plaque is not truly dilated and patency rates are not as good. In a related application, several cases have been reported of recanalizing totally occluded arteries for renal failure, but success has been more limited.

Contrasted with peripheral angioplasties, in renal procedures there is a higher incidence of early restenosis requiring repeat dilatations. Fortunately these have been uniformly successful and easier to perform than the initial procedure. It points out the need for close follow-up and re-examination of the vessel if blood pressure begins to rise. The new technology of intravenous angiography using Digital Video Radiography will markedly simplify both initial and follow-up evaluations and, coupled with P.T.A., promises to have a dramatic impact on the management of new hypertensives.

Coronary angioplasty has its own set of somewhat singular complications and indications, as well as some significant differences in techniques and preparations, and will not be discussed here in detail. Results are promising, but patient selection is of critical importance. American experience has shown more significant success with dilatation of stenosed coronary bypass grafts than primary lesions.

There is a whole array of miscellaneous vascular applications in which considerable success has been reported in small series.<sup>14</sup> One major area is in various post-surgical graft stenoses. Most experience has been documented in renal transplantation cases where results have been as favorable as in native renal vessels. Stenoses of peripheral bypass grafts unfortunately are often not found until total thrombosis has ensued, but there are several reports on these anastomotic narrowings having been opened. On the venous side, good results have also been achieved with portal-systemic diversions (both meso-caval and spleno-renal shunts) and in venous access shunts for dialysis. The restriction of flow in these cases is generally not atherosclerosis, but rather post-surgical fibrotic scarring or excessive intimal proliferation. Although the mechanism may be different, balloon angioplasty appears to work well.

P.T.A. has not been successful in "median arcuate ligament" or "celiac compression" syndrome, but true abdominal angina has been relieved by dilatation of the stenotic orifices of visceral branches. Though not often encountered, patients with this entity are usually elderly with diffuse vascular disease and poor surgical risks,

making P.T.A. all the more attractive. The axillary approach is often required due to the sharp downward angle of the celiac and mesenteric arteries.

Approaching the brachiocephalic circulation must be mixed with a good deal of caution because while a small embolic fragment is usually inconsequential in the peripheral vascular tree, it could have disastrous effects in the brain. Lesions distal to the vertebral origins in the subclavian or axillary vessels have been opened with relative impunity and are good candidates, as surgery can be difficult. Proximal lesions of the subclavian with a true "subclavian steal" (where blood flow from the carotids and the opposite vertebral vessels are drawn from the Circle of Willis down the vertebral, in retrograde fashion, to supply the arm) have been dilated with the theoretic comfort that the direction of flow has protected the head from possible emboli. This is somewhat tenuous reasoning as at what moment embolization can occur and what moment flow reversal occurs cannot be ascertained accurately. Certainly only smooth stenoses should be attempted.

As one would surmise from the above, percutaneous angioplasty is not recommended for atherosclerotic carotid artery lesions, but there have been successful dilatations of stenoses caused by fibromuscular disease here, as discussed above in renal arteries. These intravascular strictures theoretically do not contain material that can be dislodged, and surgical dilatation has recently been recommended as the operation of choice for this disease rather than endarterectomy.<sup>15</sup> Certainly the percutaneous transfemoral approach has some advantages over direct surgical cut-down on the vessel.

Essentially, any vessel which is studied by selective angiography and contains a stenotic lesion can be a candidate for P.T.A. Extra vascular uses for the catheter, such as in the biliary tree and urinary tract, are just beginning to be exploited.

### Summary

Percutaneous transluminal angioplasty has been shown to be an attractive alternative to surgery in the management of various vascular stenoses and occlusions. It has the advantages of lower cost, less time lost, lack of recuperation period and lower inherent morbidity and mortality, and can be utilized multiple times for recurrence without increased risk. Significant complications are few, and success rates high if careful patient selection is utilized, and if performed by an experienced angiographer knowledgeable about the procedure and familiar with the vessel in question.

Success rates are affected by length, type and location of lesion, and not all or most vascular lesions are good candidates for P.T.A. Its role as an adjunct to, rather than alternative to surgery is important as well, and a team approach between primary physician, vascular surgeon and angiographer is always encouraged in the management of these vascular obstructions.

## References

- Dotter CT, Judkins MP: Transluminal treatment of arteriosclerotic obstruction: Description of a new technic and a preliminary report of its application. *Circulation* 30:654-670, 1964.
- vanAndel GJ: Percutaneous transluminal angioplasty. *A manual for the Radiologist*. Amsterdam: Excerpta Medica, 1976.
- Sos TA, Sniderman KW: Percutaneous transluminal angioplasty. *Semin Roentgenol*. 16:23-28, 1981.
- Colapinto RF, Harris-Jones EP, et al: Percutaneous transluminal dilatation and recanalization in the treatment of peripheral vascular disease. *Radiology*. 135:583-587, 1980.
- Greenfield AJ: Femoral, popliteal and tibial arteries: P.T.A. *AJR* 135:927-935, 1980.
- Motarjeme A, Keifer JW, Zuska AJ: P.T.A. of the iliac arteries. *AJR*. 135:937-944, 1980.
- Sparyregan S, Sniderman KW, Sos TA, et al: Popliteal artery branches: P.T.A. *AJR*. 135:945-950, 1980.
- vanAndel GJ: Transluminal iliac angioplasty: Long-term results. *Radiology*. 135:607-612, 1980.
- Waltman AC: P.T.A.: Iliac and deep femoral arteries. *AJR* 135:921-925, 1980.
- Zeitler E: Percutaneous dilatation and recanalization of iliac and femoral arteries. *Cardiovas Intervent Radiol*. 3:207-212, 1980.
- Alpert JR, Ring EJ, et al: Balloon dilatation of iliac stenosis with distal arterial surgery. *Arch Surg*. 715-717, 1980.
- Schwarten DE: Transluminal angioplasty of renal artery stenosis. *AJR* 135:969-974, 1980.
- Tegtmeyer CJ, Dyer R, et al: P.T.A. of the renal arteries. *Radiology* 135:589-599, 1980.
- Novelline RA: P.T.A.: Newer applications. *AJR* 135:983-988, 1980.
- Effeney MB, Ehrenfeld WK, et al: Why operate on carotid fibromuscular dysplasia? *Arch Surg* 115:1261-1265, 1980.

# Percutaneous Transluminal Angioplasty Of Iliofemoral Arteries

Michael Vawter, M.D.

Since publication of the classic paper by Dotter and Judkins,<sup>1</sup> percutaneous transluminal angioplasty (PTA) has undergone substantial evolution. The balloon dilatation catheter developed by Gruntzig<sup>2</sup> has made dramatic results possible in the treatment of selected patients with peripheral vascular occlusive disease. Areas of stenosis or occlusion throughout the iliofemoral tree are easily reached by the balloon catheter and some lesions of the tibial arteries are accessible. Complete occlusions lend themselves to remedy by this innovative approach and sometimes are easier to correct than are areas of stenosis. Multiple areas of stenosis can be corrected with one procedure.

The procedure is performed under local anesthesia and is therefore an excellent method of treating peripheral vascular disease in elderly debilitated patients as well as those with other medical problems which preclude or make general anesthesia risky. The percutaneous approach allows patients to recover without sutures and to be ambulatory on the day of, or the day after the procedure.

## Results

From December 1979 to November 1980 PTA was attempted in nine stenotic or occluded iliac arteries in seven patients and in seven stenotic or occluded superficial femoral arteries in seven patients. In the iliac arteries seven of nine (88%) were opened or improved while in the superficial femoral arteries five of seven (71%) were opened or improved including the last five consecutive patients.

---

From: 525 North Eighteenth Street, Suite 3, Phoenix, Arizona 85006.





Figure 1

#### Illustrative Case Report:

R. P. a 57-year-old white male was admitted to St. Luke's Hospital Medical Center on November 20, 1980 with a chief complaint of severe left calf claudication. Although an arteriogram performed at another hospital in April 1979 had revealed a high grade left superficial femoral artery stenotic lesion, the patient had refused corrective surgery. On the day of this admission repeat arteriography showed that the stenosis had progressed to a complete occlusion 2.5 cm in length (Figure 1). The next day PTA was performed using a 5 French dilatation catheter (Figure 2). Postdilatation arteriography at the time of the procedure demonstrated excellent flow through the previously occluded area (Figure 3). The patient was discharged in a fully ambulatory state on the first postdilatation day. Five days later, follow-up non-invasive Doppler and pulse volume studies confirmed the improvement when compared to predilatation non-invasive studies.

#### Complications:

The theoretical complications of PTA include local hematoma, thrombosis, peripheral embolism, post treatment bleeding and pulsating hematoma. In our series three patients have experienced complications.

The first PTA attempt of a superficial femoral artery was complicated by distal thrombosis. The case was an especially difficult one because the patient had previously had an ipsilateral aorto-iliac graft and the balloon catheter was of necessity inserted through the graft. Subsequently the patient went on to have



Figure 2



Figure 3

previously planned femoral popliteal bypass graft surgery and recovered uneventfully. Another patient suffered perforation of the superficial femoral artery with a guidewire necessitating termination of the procedure. In a third patient an iliac procedure was complicated by thrombosis at the site of arterial puncture well distal to the area of successful angioplasty. The thrombus was removed under local anesthesia and the patient had an excellent result. All three patients have recovered well from their complications without any significant long lasting results.

#### Cost Comparison:

Not the least of the favorable aspects of PTA are reduced length of hospital stay, and reduced cost as compared to the surgical alternative. In this comparison three patients have been removed from the PTA group. First was a patient in whom PTA was not successful and who underwent subsequent femoral popliteal bypass graft surgery with uneventful recovery. The second was a patient who had a successful PTA procedure and five days later while awaiting another PTA had a cerebral vascular accident not related to the procedure but

necessitating a prolonged hospital stay. The last patient had subsequent coronary artery bypass graft surgery during the same hospitalization and was therefore not included. All other patients in whom PTA were attempted were included in this group. The surgical group, however, included only those patients with completely uncomplicated recoveries. Any complication of any kind caused the patient to be removed from comparison giving the surgical group its best possible results.

Six patients underwent aorto-iliac surgery. The average hospital bill was \$6,514 with an average length of stay of 13.7 days. Six patients had iliac dilatation (two had bilateral procedures) with an average hospital bill of \$2,818 and an average length of stay of 7.9 days.

Seven patients had unilateral femoral popliteal bypass graft surgery with an average hospital bill of \$3,356 and an average length of stay of 10.5 days. Five patients who had superficial femoral artery dilatation stayed an average of 3.6 days with an average hospital bill of \$1,803.

In the aorto-iliac group the hospital bill was reduced by \$3,696 (56%) and the hospital stay by 5.9 days (42%). The average bill for the superficial femoral group was reduced by \$1,553 (46%) and the hospital stay by 6.9 days (65%). Not included in the savings are anesthesiologists' and surgical assistants' fees. Another important factor is the savings to society in reduced work-loss time, as the PTA patients are ready to return to work within virtually a few days after a successful procedure.

#### Summary:

Percutaneous transluminal angioplasty as applied to peripheral vascular disease affords quick and dramatic relief of symptoms, and is safe and less traumatic than corrective surgery. Further, the reduction in cost and length of hospital stay is appreciable. This procedure can be considered a preferable alternative to surgery in many if not most patients with peripheral vascular occlusive disease of the lower extremities.

#### References

- Dotter CT, Judkins MP: Transluminal treatment of arteriosclerotic obstruction: Description of a new technic and a preliminary report of its application. *Circulation*. 30:654-670, 1964  
Zeitler E, Gruntzig A, Schoop W, (eds): *Percutaneous Vascular Recanalization*. Springer-Berlag, New York, 1978.

## Percutaneous Transluminal Coronary Angioplasty (P.T.C.A.)

Marvin B. Padnick, M.D.  
Douglas P. Jensen, M.D.

#### Introduction

Coronary angioplasty is a new technique whereby a distensible balloon is utilized to dilate a localized area of coronary artery stenosis.

The original concept of compressing atheromatous material was applied to peripheral vessels by Dotter and Judkins in 1964.<sup>1</sup> Their technique involved a system of coaxial catheters resulting in gradual dilatation of the involved arterial segment. In 1974, Gruntzig and Hopff<sup>2</sup> designed a non-elastic double lumen balloon catheter which enabled the dilatation pressure to be concentrated on the stenotic segment and avoided the snowplow effect and peripheral emboli of the former bougie system.

Prompted by success with peripheral vessels, Dr. A. Gruntzig et al applied his technique to coronary arteries of dogs. Initial studies in man involved intraoperative dilatation in vessels being prepared for saphenous vein bypass. No emboli or debris distal to the occluded segment following dilatation was found.<sup>3</sup> In September 1977, the first human dilatation was performed.

#### Technique

Seventy-two hours prior to angioplasty, patients are begun on anti-platelet agents. Under the influence of nitrates and calcium antagonists, repeat coronary angiography is performed to reevaluate coronary anatomy and to rule out coronary artery spasm. A guiding catheter is inserted through the brachial or femoral artery and negotiated to the orifice of the right

From: Cardiology Section, Good Samaritan Hospital, Phoenix, Arizona and Maryvale Samaritan Hospital, Phoenix, Arizona. Reprint requests to Dr. Padnick, 4616 North 51st Avenue, Phoenix, Arizona 85031.





Figure 1

Patient 4. Right coronary artery stenosis LAO projection, subtotal stenosis, predilatation.



Figure 2

Patient 4. Balloon inflation

or left coronary system. The dilatation or balloon catheter is advanced through the guiding catheter and under fluoroscopic pressure and angiographic control manipulated through the localized stenotic segment. A gradient across the lesion is measured and rapid inflation and deflation performed till an acceptable reduction in gradient is achieved. The dilatation catheter is removed and repeat angiography performed to demonstrate angiographically the reduction in luminal narrowing. Postoperatively, the patients are maintained on antiplatelet agents. Follow-up Thallium treadmill is done at three weeks and repeat angiography at six months is advised.

#### Case Report

E. D., a 53-year-old male was well until three weeks prior to admission when he noted the onset of substernal pressure with mild exertion. On the day of admission, he noted the onset of chest pain at rest and recurring several times throughout the day. He was admitted to Maryvale Samaritan Hospital where EKG revealed T-wave inversion in inferior leads which returned upright with relief of pain. He was begun on beta blockers and nitrates with minimal improvement in symptoms. Cardiac enzymes were negative for infarction. Coronary angiography revealed 99% stenosis of the mid right coronary artery and 40% stenosis of the circumflex artery (Figure 1).

Following informed consent, repeat angiography confirmed the critical stenosis of the right coronary. Under local anesthesia, via the femoral artery approach, the guiding and dilatation catheters were advanced into the orifice of the right coronary artery. The balloon

catheter was then advanced across the lesion and the gradient was 75mm Hg. Three successive dilatation resulted in a reduction of gradient to 8mm Hg (Figure 2). Repeat angiography demonstrated a residual narrowing of 40% (Figure 3). The patient was transferred to the Coronary Care Unit for routine observation and discharged from the hospital 48 hours later, pain free.

#### Results

Throughout the world over 2,000 patients have now undergone coronary artery angioplasty.<sup>5</sup> Original data revealed success in 32 of 50 patients, reducing the stenosis from a mean of 84% to 34%.<sup>6</sup> Original data from Zurich, Switzerland<sup>5</sup> on 164 patients revealed a success rate of 78%. Observation of the 112 patients with primary success for 1-36 months (mean 9 months) revealed death in two patients (2nd and 9th month), recurrence in 20 patients (12 underwent successful repeat PTCA) for an overall success rate of 91%.

More recent data from the National Heart, Lung, and Blood Institute Registry included 1000 patients from 3 centers.<sup>7</sup> Two-thirds of the patients were New York Heart Association function class III or IV. Seventy-eight percent of the patients had single vessel disease, 16% double vessel, 4% single vessel, and 2% left main disease. There was an overall success rate of 59%, with 71% success in left main disease, 64% in the left anterior descending, and 56% with the right coronary artery. Complications included a 1.3% death rate (including 3 of 13 deaths following elective bypass surgery), 6% emergency coronary artery bypass, 5% myocardial infarction, and 1% ventricular fibrillation. A further analysis of the data revealed a death rate of 0.8% for



Figure 3

Patient 4. Right coronary artery LAO projection, postdilatation.

single vessel disease and 1.2% for multivessel disease in patients without previous bypass surgery. In patients with prior coronary artery bypass surgery, there was 2.4% mortality in single vessel disease and 15.2% multivessel disease mortality. Only two deaths were related to the angioplasty proper! One year follow-up reveals 83% of patients improved.

Our experience at Good Samaritan Hospital has been encouraging (Table 1). Four of five patients have successfully undergone coronary angioplasty. In one patient we were unable to cross the lesion and he successfully underwent elective coronary artery bypass two weeks later. Eighty percent of the patients remain improved with no infarctions documented electrocardiographically postdilatation.

Studies, determining if angioplasty induced reduction of coronary artery stenosis provide functional

augmentation of coronary artery blood flow, have been performed. Thallium-201 myocardial scans providing information regarding regional myocardial perfusion with exercise appear to correlate directly with angiographic improvement following PTCA.<sup>8</sup> In addition, gated blood pool scans reveal improvement in exercise-induced regional myocardial dysfunction following PTCA.<sup>9</sup>

#### Patient Selection and Future Direction

It appears that certain criteria are evolving for patient selection. First, one must determine that the lesion demonstrated angiographically is responsible for the patient's symptoms. Screening should include a positive stress test and/or Thallium scan to demonstrate myocardial ischemia. Secondly, the patient should be a candidate for coronary artery bypass since 64 of 1000 patients in the N.H.L.B.I. series required bypass surgery within 24 hours of attempted PTCA.

Anatomically, the lesions should be proximal, non-calcified and in the setting of a non-infarcted ventricle. As suggested by registry data, patients with previous coronary artery bypass surgery and multi-vessel disease appear to have a greater risk for failure.

As with any new procedure, there is a period of learning, with refinement of technique, expertise, and judgment. This was clearly demonstrated with coronary artery bypass surgery. The present data with coronary angioplasty is encouraging and further improvements are expected.

A new procedure should compare favorably with current treatment before it is ultimately accepted. It appears that non-surgical revascularization will meet that challenge.

#### Acknowledgements

The authors wish to thank Nancy Audit, R.N. for her cath lab assistance and James E. Meyer, M.D. for review of this manuscript and to Roberta Wilkins for typing.

#### References

1. Dotter CT, Judkins MP: Transluminal treatment of arteriosclerotic obstruction: Description of a new technic and a preliminary report of its application. *Circulation* 30:654-670, 1964.
2. Gruntzig A, Hopff H: Perkutane rekanalisation chronischer arterieller verschlüsse mit einem neuen dilationskatheter modifikation der Dotter-Technik. *Dtsch Med Wschr.* 99:2502, 1974.

Table 1  
Coronary Angioplasties Performed at Good Samaritan Hospital, October 1980 to April 1981

| Patient | Age | Vessel        | % Stenosis      |                  | Gradient (mmHg) |      | Primary Success |
|---------|-----|---------------|-----------------|------------------|-----------------|------|-----------------|
|         |     |               | Pre-angioplasty | Post-angioplasty | Pre             | Post |                 |
| F.M.    | 42  | LAD           | 85%             | 70%              | 38              | 20   | Yes             |
| P.F.    | 50  | LAD           | 80%             |                  |                 |      | No              |
| W.B.    | 58  | LAD           | 99%             | 40%              | *               | 3    | Yes             |
| E.D.    | 56  | RCA           | 99%             | 40%              | 75              | 8    | Yes             |
| GH.     | 31  | Circ Marginal | 99%             | 30%              | *               | 10   | Yes             |

Procedure performed with Simpson-Robert<sup>1</sup> dilation system. Predilation gradient not measured with this technique. LAD—left anterior descending artery; RCA—right coronary artery; Circ Marginal—obtuse marginal, circumflex system.



3. Gruntzig A, Myler R, Honna E, et al: Transluminal angioplasty of coronary artery stenosis. (*abstr*) *Circulation*. 56:84, 1977.
4. Gruntzig A: Percutaneous transluminal revascularization of chronic arterial occlusion with a dilatation technique. Baden-Baden, Germany, G. Witzstorch-Verlag, 1977.
5. Gruntzig A: Demonstrations in percutaneous transluminal angioplasty IV. Zurich, Switzerland, August 3-7, 1980.
6. Gruntzig A, Senning A, Siegenthaler WE: Non-operative dilatation of coronary artery stenosis: Percutaneous transluminal coronary angioplasty. *N Engl J Med* 301:61-68, 1979.
7. Symposium on Coronary Intervention in Ischemic Syndromes. Stanford University, March 13-14, 1981, Stanford, California.
8. Hirzel HO, Nuesch K, Gruntzig AR, Luetolf UM: Short and long-term changes in myocardial perfusion after percutaneous transluminal coronary angioplasty assessed by Thallium-201 exercise scintigraphy. *Circulation* 63:1001-1007, 1981.
9. Kent K, Bonow RO, Rosing DS, et al: Improved myocardial perfusion and function following percutaneous transluminal coronary angioplasty. Proceedings of the workshop on percutaneous transluminal coronary angioplasty. p39, June 15-16, 1979, Bethesda, Maryland.

## Editorial Comment

### How to "Flatten" Your Opponent

Kenneth B. Desser, M.D.

In contradistinction to many other medical specialties, therapy for cardiovascular disease seems to progress in "quantum" leaps. Advances in pharmacology, surgery and currently catheter dilation evoke astonished audiences at medical meetings. Lay reporters subsequently convey these therapeutic shock waves through the media. All of these exciting developments seem to be converging in a manner which is new to cardiology. The following case construction may serve as a paradigm for these mutually dependent treatments. A 46-year-old man presents with retrosternal chest pain and S-T segment elevation on his electrocardiogram. Emergency angiography demonstrates 100% occlusion due to spasm over a 75% non-calcified atherosclerotic obstruction. The spasm is reversed by intravenous nitroglycerin and a calcium channel smooth muscle relaxant, the atherosclerotic obstruction is "flattened" by balloon catheter and if a thrombus is demonstrated, selective infusion of streptokinase and plasminogen dissolves the clot. In the event that these modalities fail a cardiac surgeon bypasses the lesion while diastolic perfusion is enhanced by counterpulsation. A mere half-decade ago this example would have been considered strictly "Star-Wars" material.

The papers on percutaneous transluminal angioplasty published in this month's issue of *Arizona Medicine* indicate that our colleagues are riding on the crest of these therapeutic waves. Balloon dilation appears to be a well established non-investigational therapy for occlusive disease of the lower extremities and renal

vasculature. The catheters are advanced with some degree of trepidation into the extracranial neck and intracranial arteries. Perhaps the dangers of distal embolization could be minimized by systemic anticoagulation as currently applied to the coronary system.

The majority of cardiologists and vascular radiologists agree that percutaneous transluminal coronary angioplasty should be limited to patients with symptoms justifying coronary bypass grafting and in whom a single coronary artery is suitable for dilation. Some studies provide evidence that this combination is appreciated in less than 10% of patients who are candidates for bypass surgery. These criteria continue to defy precision since there is still considerable controversy as to what constitutes "symptoms justifying bypass." At a recent meeting one member of the audience asked the angioplaster what the mean dosages of nitrate, propranolol and calcium blockers were in the group subjected to a procedure which 1) is performed primarily to alleviate symptoms and 2) has not been demonstrated to improve lifespan. Someone else provided comic relief by asking if there was such a word as "angioplaster." The spectre of the non-catheterizing physician rears its head and demands that these tubes be placed in proper perspective. Is a patient taking a total of 15 mg of oral isosorbide and 40 mg of propranolol really a medical refractory subject? Are homeopathic dosages of antianginal medication the gold-standard for these bold initiatives? Well informed physicians should ask themselves whether they would prefer walking about with a proximal 80% occlusion of their left anterior descending coronary artery while taking pills every six to eight hours or a lesion flattened to 40% without the need for medication. This exercise in soul-searching often provides good numerators for the demonimator.

*Supported by the Biomedical Research Memorial Fund, Inc.*



## Euthyroid Sick Syndrome

William J. Georgitis, M.D.

Gerald S. Kidd, M.D.

Fred D. Hofeldt, M.D.

Editor:

Stephen E. Dippe, M.D.

### Abstract

Thyroid function tests in hospitalized patients suffering from nonthyroidal illnesses are frequently abnormal and often suggest hypothyroidism. Low serum T3\*, T4, FTI and high T3RU separately or in several combinations have been reported as manifestations of the "euthyroid sick syndrome."

Three case histories of patients with strikingly abnormal thyroid function tests are presented — one with hypothyroidism, one with the "euthyroid sick syndrome," and one with the combination of mild hypothyroidism and the "euthyroid sick syndrome." These cases illustrate some of the similarities and differences between hypothyroidism and the laboratory syndrome designated "euthyroid sick." Because low serum levels of frequently measured thyroid hormones can be encountered in both conditions, we suggest the initial assessment of thyroid status rely on physical findings and readily obtainable laboratory tests including TSH. In selected cases, more expensive tests including rT3 and T3 levels may be added to the diagnostic armamentarium. An integrated interpretation of all the test results should correctly

\*The following abbreviations will be used: T4-thyroxine, T3-triiodothyronine, rT3-reverse triiodothyronine, T3RU triiodothyronine resin uptake, FTI free thyroxine index, TSH thyroid stimulating hormone, TRH thyrotropin releasing hormone, TBG-thyroxine binding globulin, and TBPA-thyroxine binding prealbumin.

From: Fitzsimons Army Medical Center, Endocrine Service, Department of Medicine, Aurora, Colorado 80045. The opinions or assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense. Reprint requests to Major William J. Georgitis, M.C., Fellow in Endocrinology, Endocrine Service, Department of Medicine, Fitzsimons Army Medical Center, Aurora, Colorado 80045.

separate hypothyroidism from the laboratory abnormalities of nonthyroidal illness and help the clinician avoid unnecessary and possibly harmful thyroid hormone therapy in acute and chronic nonthyroidal disease states.

The lack of familiarity with the effects of nonthyroidal illnesses on thyroid function tests may cause confusion in the interpretation of thyroid function in hospitalized sick patients. Recent laboratory developments have provided new insight into the thyroid physiology of nonthyroidal illnesses. Sensitive radioimmunoassays for iodothyronines and thyroid stimulating hormone, and the use of thyrotropin releasing hormone have clarified our understanding of the effects of nonthyroidal illnesses on thyroid function tests. The purpose of this article is to present three patients with markedly abnormal thyroid function tests in whom the alternate diagnoses of hypothyroidism and "euthyroid sick syndrome" were entertained, to review some of the laboratory hallmarks of the "euthyroid sick syndrome," and to suggest an approach for separating the hypothyroid patient from the euthyroid patient with nonthyroidal illness when routine tests fail.

### Case Reports:

Case No. 1: L. K. was a 48-year-old white male with a history of insulin dependent diabetes mellitus and primary hypothyroidism who complained of intolerance to thyroid extract. His hypothyroidism developed after radioiodine therapy for thyrotoxicosis 13 years earlier. He reported cycles of weight loss while taking one-half-grain of thyroid extract daily. The weight loss frightened him and resulted in his intermittently discontinuing his medication. Abnormal thyroid



function tests were obtained by his physician prior to referral for evaluation of the medication intolerance.

On physical examination, he was alert and oriented. Vital signs were pulse 68, blood pressure 122/88, and oral temperature 97.6°F. He had coarse, dry, hyperkeratotic skin; cool hands; periorbital edema; a deep hoarse voice; and a delayed recovery phase of deep tendon reflexes. No thyroid tissue was palpable and the remainder of his physical examination was normal.

Significant laboratory data included an SMA-12 which was normal except for a fasting glucose of 552 mg/dl (normal 65-110), LDH 263 IU/l (nl 90-125), and cholesterol 289 mg/dl. Thyroid function tests included serum T4 1.0 mcg/dl (nl 4.5-12.0), T3RU 32% (nl 35-45), FTI 0.03 (nl 1.6-5.4), T3 74 ng/ml (nl 70-200), rT3 11 ng/ml (nl 30-80), and TSH of 48 mU/ml (nl 1.5-6.0).

Case No. 2: R. W. was a 51-year-old white male undergoing treatment for acute myelomonocytic leukemia who suffered a forty pound weight loss during his illness. Abnormal results for thyroid function tests ordered to explain a finding of hyponatremia led to an endocrine consultation.

On physical examination, he was emaciated but alert. Vital signs were pulse 110, blood pressure 110/60, and oral temperature 98°F. The thyroid exam was normal. The skin was fine, dry and warm. Deep tendon reflexes were brisk. The remainder of the physical examination was normal.

Pertinent laboratory data included serum sodium 132 mEq/l (nl 135-147), potassium 3.3 mEq/l (nl 3.5-5.0), chloride 99 mEq/l (nl 3.5-5.0), chloride 99 mEq/l (nl 95-108), and SMA-18 which was normal except for LDH 263 IU/l. Serum cholesterol was 115 mg/dl. Serum T4 was 2.1 µg/dl, T3RU 55%, FTI 1.1, T3 <25 ng/ml, rT3 53 ng/ml and TSH 2.2 µU/ml. Serum TSH before and after a 500 µg intravenous bolus of TRH (Thyphipone, Abbott) was 0 minutes-2.2, 30 minutes-4.8, and 60 minutes 4.6 µU/ml. Serum luteinizing hormone and follicular stimulating hormone levels were within normal limits.

Case No. 3: R. H. was a 58-year-old white male admitted for anemia and mental confusion with a past history of alcohol abuse. His hospital stay was marked by weight loss, intermittent fever, and deteriorating mental alertness. As part of the evaluation of his mental status changes, thyroid function tests were obtained.

On physical examination, he was confused, lethargic, cachectic, weak and tremulous. Vital signs were pulse 118, blood pressure 160/70 and oral temperature 101°F. His skin was moist but normal in texture and color. He had a normal thyroid to palpation and brisk deep tendon reflexes. The remainder of the physical examination was normal. The day after this examination he died and an autopsy revealed a grossly normal thyroid and bacterial endocarditis.

Selected laboratory data were cholesterol 106 mg/dl, albumin 2.9 g/dl (nl 3.5-5.2), T4 1.0 µg/dl, T3RU 50%, FTI 1.0, T3 <25 ng/ml, free T4 by equilibrium dialysis 1.1 ng/dl (nl 1.02-2.3), rT3 12 ng/ml, TSH 12.2 µU/ml,

and serum TBG 16 µg/ml (nl 12-28).

Thyroxine (Autopak T4 RIA), triiodothyronine (Autopak T3 RIA), and triiodothyronine resin uptake tests (Autopak T3 RIA, Micromedex Systems, Horsham, PA) were performed by the Fitzsimons Army Medical Center Nuclear Medicine Service RIA Laboratory. Thyroid stimulating hormone (solid phase HTSH, Beckman Instruments, Inc. Fullerton, California), luteinizing hormone (Immuno LH) and follicular stimulating hormone levels (Immuno FSH, Pantechnique, Malibu, California) were performed by the Fitzsimons Army Medical Center Department of Pathology RIA Laboratory. Reverse T3 levels were done by RIA at the Nichols Institute, San Pedro, California. TBG by T<sub>4</sub> binding capacity and free T<sub>4</sub> by modified equilibrium dialysis were done by Bio-Science Laboratory, Van Nuys, California. All other laboratory tests were performed using standard methods by the Fitzsimons Army Medical Center Clinical Pathology Service.

### Discussion:

The "euthyroid sick syndrome" is characterized by a variable constellation of abnormal laboratory thyroid function tests from the blood of patients suffering usually from serious acute or chronic nonthyroidal illnesses. These tests tend to indicate a state of thyroid hypofunction, and if erroneously interpreted, may lead to an incorrect diagnosis of hypothyroidism.

The "euthyroid sick syndrome" is common in hospitalized patients. Bermudez et al found low T<sub>3</sub> levels in 68% of 34 clinically euthyroid sick hospitalized patients, and low T<sub>4</sub> levels in 6%.<sup>1</sup> Rubenfeld reported the incidence of the syndrome (based on low T<sub>3</sub> levels) to be 37% in seventy consecutive hospital admissions and concluded that the "euthyroid sick syndrome" was the most common biochemical abnormality of endocrine function in medical admission to a municipal hospital. This syndrome exists as a spectrum with various degrees of laboratory abnormality. The most common abnormality is a low serum T<sub>3</sub>, but in most hospitals this test is not routinely used and thus, many patients who would have this abnormality remain undetected and do not pose a diagnostic problem. It is the less common finding of the low T<sub>4</sub> with a low T<sub>4</sub> index which characteristically creates a dilemma in ruling out hypothyroidism.

The low T<sub>4</sub>'s and FTI's found in some patients with nonthyroidal illnesses have not been well understood. TBPA levels fall in many illnesses but TBPA only binds about 15% of serum T<sub>4</sub>. Therefore, this does not explain T<sub>4</sub> levels decreased by as much as 80%.<sup>3</sup> Similarly, TBG levels are significantly lower in nonthyroidal illnesses but not low enough to account for the low T<sub>4</sub> values.

Fortunately, there are some striking differences in the laboratory findings between the "euthyroid sick syndrome" and hypothyroidism. In hypothyroidism, the earliest detectable abnormality is an augmented TSH response to TRH injection. The TSH response to TRH in the "euthyroid sick syndrome" has been shown to

normal<sup>2</sup> or blunted.<sup>3</sup> Later stages of hypothyroidism are characterized by elevations in the basal serum TSH while serum T4 and T3 are still in the normal range. An even more advanced stage is heralded by a low serum T4 and a normal serum T3. Finally, in the most severe grades of hypothyroidism, serum T3 is mildly to moderately decreased.<sup>5,6</sup> The preservation of serum T3 relative to T4 in hypothyroidism should be emphasized since it is one contrasting finding that separates hypothyroidism from the "euthyroid sick syndrome." In fasting and acute nonthyroidal illnesses T3 levels fall rapidly within a matter of days to much lower levels than are generally seen in hypothyroidism.<sup>7</sup>

Another contrasting result in the two disorders is often found in the T3 resin uptake. Hypothyroid patients characteristically have low or low-normal T3RU's, whereas patients with nonthyroidal illnesses tend to have high normal or elevated T3RU's. The usual explanation for elevation of T3RU is deficiency of serum thyroid hormone binding proteins. The product of the total serum T4 and the T3RU (FTI) ideally should correct for the deficiency and accurately reflect free hormone levels. However, it fails to adequately correct for the changes in protein binding levels with extremely high or low values of TBG. This is largely due to the inaccuracies of the T3RU with extreme deviation of TBG protein concentrations from normal. Chopra et al have explained that free T4 indexes can be misleadingly low in nonthyroidal illnesses.<sup>4</sup> They also found that dialyzable fractions of both T4 and T3 are elevated in euthyroid sick patients, and that the magnitude of change from normal in dialyzable hormone fractions and the resin uptakes are disproportionate. Diminished TBPA and TBG levels do not account for these changes and this has led to a search for a thyroid hormone protein binding inhibitor in the sera of euthyroid sick patients. This inhibitor appears to be heat labile and pH sensitive. In T3RU tests, run at an unphysiologically acid pH, the effect of the binding inhibitor is destroyed. The T3RU is therefore not as high as it would be otherwise and the FTI (product of the T4 and T3RU) is deceptively low.

Patients with both low T4 and T3 levels appear to be at the greatest risk of misclassification. Chopra showed that many "euthyroid sick" patients had overlapping results with hypothyroid patients for T4, FTI, and free T4.<sup>4</sup> Despite recent claims to the contrary,<sup>8</sup> significant overlap in newly developed free T4 assays by radioimmunoassay techniques probably exist for the sera from hypothyroid and nonthyroidally ill patients.<sup>9</sup> As a single test, therefore, the newer free T4 methods can not yet solve every diagnostic dilemma. One should expect that serum TSH would be elevated only in the hypothyroid patients and should be the diagnostic test of choice. However, mild TSH elevations have been reported in the "euthyroid sick syndrome." The reason TSH elevations have been reported in these patients with nonthyroidal illnesses judged to be euthyroid is unclear. It may reflect an adaptive response to illness. In

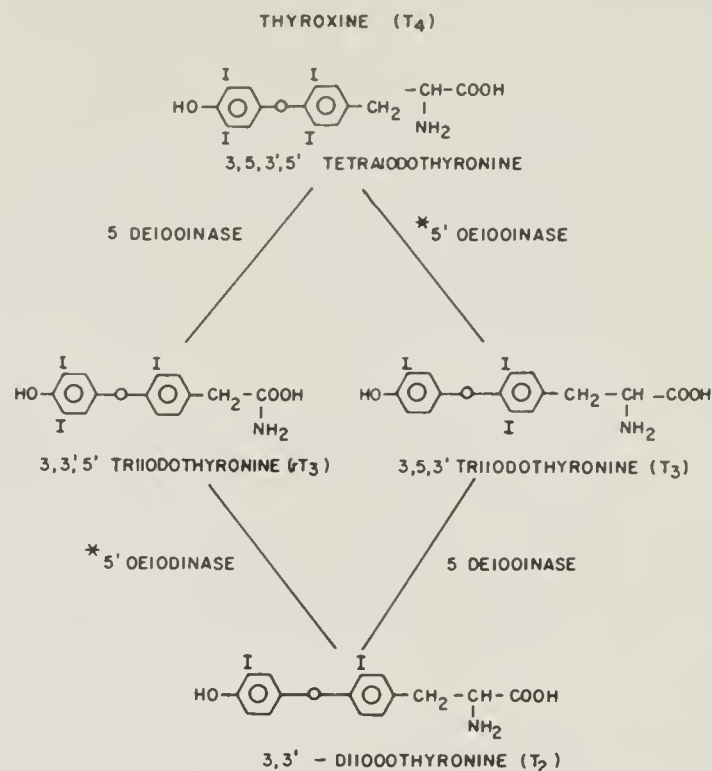


**Figure 1**  
Structural formulas and some of the peripheral metabolic conversions of the major iodothyronines. \*5' deiodinase may be selectively inhibited in nonthyroidal illnesses thus impairing peripheral T3 production and rT3 degradation.

most instances, TSH elevations represent mild thyroid deficiency occurring incidentally in patients with nonthyroidal illness.

Chopra's group found that the serum rT3 level was the single best test to differentiate the "euthyroid sick" from the truly hypothyroid patients and showed no overlap between the two groups for this test. Reverse T3 (3,3',5' T3) has little or no thyromimetic activity, and like T3 is generated by monodeiodination of T4 by enzymes located predominantly outside the thyroid gland. Less than 20% of T3, and probably even less reverse T3, originates directly from the thyroid.<sup>7</sup> The peripheral conversion of T4 to T3 as well as the degradation of rT3 is probably accomplished by the same enzyme - 5' monodeiodinase. In contrast, the degradation of T3 and production of rT3 probably depends on another enzyme, a 5 monoeiodinase (Figure 1). If the activity of 5' monodeiodinase is inhibited, T3 production and rT3 clearance will both fall resulting in decreased serum T3 and increased rT3 as seen in nonthyroidal illnesses. In hypothyroidism, T4 production by the thyroid decreases, thus providing less substrate for rT3 generation peripherally and rT3 levels are found to be low. T3 production is usually only mildly decreased.<sup>7</sup> The net result is a fall in rT3 levels and relative preservation of T3 levels in hypothyroidism in contrast to the findings seen in nonthyroidal illnesses.

Despite the report in a single study of apparent excellent separation of "euthyroid sick" and hypothyroid



patients by rT3 levels,<sup>4</sup> one must conclude that reliance on any single test to rule out hypothyroidism may be hazardous in the face of nonthyroidal illness. This is especially true in patients with nonthyroidal illness and low T4's and FTI's who are suspected to be euthyroid on clinical grounds. Unsettled questions about the thyroid status of an individual patient raised by conflicting findings at the bedside and in laboratory results may be ultimately resolved by ordering additional carefully selected tests through a reference laboratory.

#### Analysis of Cases:

Figure 2 graphically displays the results for the three cases presented, and shows that all three have some results compatible with either hypothyroidism or the "euthyroid sick syndrome." Case No. 1 is most consistent with primary hypothyroidism with a markedly elevated basal TSH, low T4, low T3RU, low FTI, and low normal T3 levels. It should be stressed again that T3 levels tend to be preserved in hypothyroidism. The rT3 level was low and apparently unaffected by the patient's poorly controlled diabetes. Diabetes has been shown to lower T3 and raise rT3 levels like other nonthyroidal illnesses.<sup>3</sup> In addition, the patient had many physical findings consistent with hypothyroidism.

Case No. 2 represents a typical example of severe "euthyroid sick syndrome," with both low serum T3 and T4 levels. Clinical signs of hypothyroidism were lacking despite lab findings consistent with pituitary dependent hypothyroidism (blunted TSH response to TRH). The normal gonadotropin levels help to exclude pituitary disease. The normal rT3 supports the clinical impression of euthyroidism and allows us to accept the low T4, elevated T3RU, and low FTI as manifestations of the "euthyroid sick syndrome." The extremely low T3 levels are more consistent with this syndrome than with hypothyroidism.

Case No. 3 appears to have a combination of "euthyroid sick syndrome" and mild hypothyroidism. The elevated TSH can be seen in either condition according to Chopra<sup>1</sup> but is more suggestive of hypothyroidism. The low T4 and the low FTI may also be seen in either condition. The elevated T3RU and the extremely low T3 together suggest the "euthyroid sick syndrome." Bedside clinical signs of hypothyroidism were not present as is often the case in mild hypothyroidism.

Thyroid function tests (T4, T3RU and calculated FTI) are often ordered for hospitalized patients with one or more clinical or laboratory findings that raise the possibility of hypothyroidism. Often results of these tests are more perplexing than diagnostically useful, and can mislead the physician. Perhaps with greater availability of free T4 assays and clinical awareness of the "euthyroid sick syndrome" most patients will be recognized. However, even free T4 measurement may not correctly classify all patients.<sup>9</sup>

In difficult cases, rT3, T3 and TSH levels seem useful

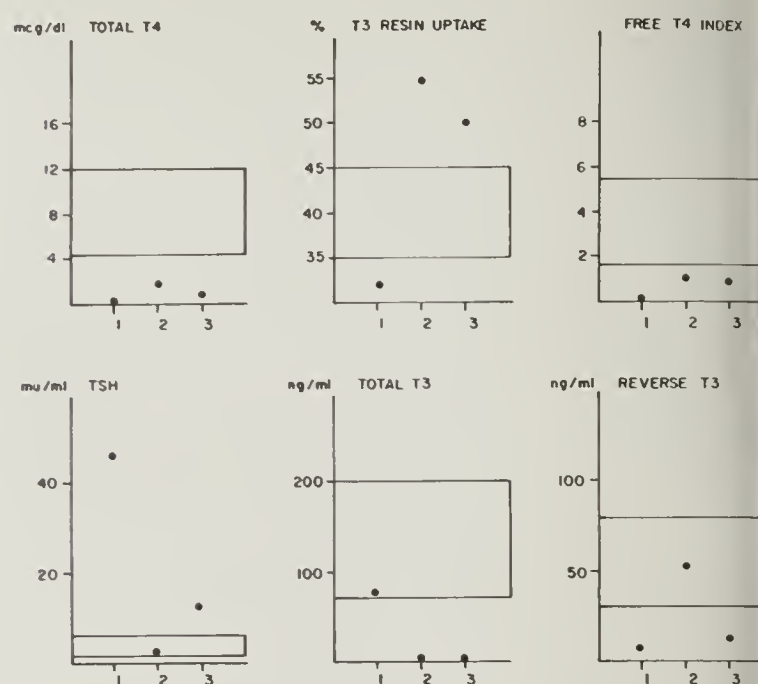


Figure 2  
Summary of Laboratory Results for Cases 1, 2, and 3.

in establishing a correct diagnosis. These tests, taken in aggregate, show characteristic results which should separate euthyroid patients hospitalized with nonthyroidal illnesses from truly hypothyroid patients. As illustrated by the three cases presented here, these tests may serve as a second battery to aid the clinician in making a decision when the history, physical exam, and readily available lab tests fail to be diagnostic. The additional expense and time required to obtain these results necessary to resolve such a diagnostic problem will probably be balanced by avoiding the monetary and metabolic costs of lifelong unnecessary thyroid hormone treatment for a patient with an acute or chronic nonthyroidal illness.

#### References

1. Bermudez F, Surks MI, Oppenheimer JH: Decreased serum T3 in nonthyroidal disease. *J Clin Endocrinol* 41:27-40, 1975.
2. Rubinfeld S, Silverman VE, Wilson H, Kutka N: Euthyroid sick syndrome: Incidence and thyrotropin releasing hormone (TRH) testing. Program and Abstracts of the 60th Annual Meeting of the Endocrine Society, June 1978, p. 418.
3. Schussler GC: Thyroid function tests in patients with nonthyroidal disease. *Thyroid Today* Vol. 3, No 3, 1980.
4. Chopra IJ, Solomon DH, Hepner GW, Morgenstein AL: Thyroid function tests in systemic illness. *Ann Int Med* 90:90-912, 1979.
5. Bigos ST, Ridgeway EC, Kourides IA, Maloof F: Spectrum of pituitary alterations with mild and severe thyroid impairment. *Clin Endocrinol Metab* 46:317-325, 1978.
6. Kourides IA: Pituitary thyrotropin secretion in thyroid disorder. *Thyroid Today* Vol. 3, No. 2, 1980.
7. Schimmel M, Utiger RD: Thyroidal and peripheral production of thyroid hormones. *Annals of Int Med* 87:766-768, 1977.
8. Kaptein EM, MacIntyre S, Spencer CA, Nicoloff JT: Comparison of serum free thyroxine methods in the low T4 state of nonthyroidal illness (NTI) and in hypothyroidism. *Clin res* 29:28A, Feb, 1981.
9. Chopra IJ, VanHerle AJ, Chua Tupe GN, Nguyen AH: Serum free thyroxine in thyroidal and nonthyroidal illnesses: A comparison of measurements by radioimmunoassay, equilibrium dialysis, and free thyroxine index. *J Clin Endocrinol Metab* 51:135-143, 1980.



## Food Borne Disease

Stephen Glouberman, M.D.

Editors:

George Burdick, M.D.

Stephen Glouberman, M.D.

Steven R. Kanner, M.D.

Robert Sanowski, M.D.

A food borne disease outbreak is defined as an event in which two or more persons experience a similar illness after ingesting a common food which epidemiologic analysis implicates as the source of illness. An exception is botulism in which one case represents an outbreak. Food borne disease is a common occurrence with about 300 outbreaks per year reported to the Center for Disease Control.

It is believed that food borne disease is at least ten times as prevalent as reported. Reasons for this include short duration of symptoms for which patients do not seek medical attention, misdiagnosis by physicians, and failure to report outbreaks to state health departments or the Center for Disease Control. The more common or serious of the known 200 etiologies of this condition will be discussed here.

### **Staphylococcal Gastroenteritis**

Staphylococcal gastroenteritis is the most common food borne disease in the United States with an estimated two million persons afflicted annually. It has been associated with roast fowl, baked ham, other meat and poultry products, potato salad, cream-filled baked goods and dairy products. Symptoms occur one to six hours after consuming the contaminated food and consist of nausea, vomiting, cramping and, occasionally, diarrhea. Fever is unusual. In severe cases, prostration may occur. Symptoms usually end within 24 hours. A fatal outcome is rare, occurring only in the very young or in the old and infirm.

The organism gains entry into the food from a foodhandler. Staphylococci are inhabitants of the anterior nares and skin, and contaminate food under conditions of poor hygiene. The organism elaborates a toxin under optimal temperatures of 10-45 degrees

Centigrade. The food with the preformed toxin is subsequently eaten and symptoms develop within a few hours. The mechanism of action of the enterotoxin is not entirely clear.

Diagnosis is made on clinical grounds, and can be confirmed by finding staphylococci in the food, and in large numbers in the stool. Immunologic methods for detecting the enterotoxin are available, but by the time the diagnosis is confirmed, the disease has ended. Treatment is supportive. Antibiotics are of no value as the illness is caused by a preformed toxin against which antibiotics have no effect.

Prevention is the key to eliminating this illness. Individuals with upper respiratory illnesses or infections of the hands should not serve as food preparers. As the organism proliferates as food stands at environmental temperatures, prevention is achievable by rapid refrigeration after cooking, and not allowing food to stand for long periods of time before it is eaten.<sup>1</sup>

### **Botulism**

Botulism is the most deadly food borne disease known to man. There are about 50 cases per year, with a mortality currently of 20%. Canned foods, especially those preserved at home, raw, smoked and fermented fish products, and home cured hams are common sources. Twelve to thirty hours after eating food containing preformed toxin, nausea, vomiting and diarrhea may occur. This is followed by constipation, abdominal distention and pain. Neurologic symptoms develop with progressive weakness, visual disturbances including double vision, difficulty in swallowing, and dysarthria. Respiratory paralysis develops and unless rapidly treated, may terminate fatally. If the patient recovers, he reports that he has been mentally alert throughout the illness.

From: 3411 North Fifth Avenue, Suite 205, Phoenix, Arizona 85013.



The causative organism, *Clostridium botulinum*, is an anaerobic, spore-forming, gram positive bacillus which naturally inhabits soil and water. It proliferates under anaerobic conditions, and elaborates a toxin. Following ingestion, the toxin is absorbed into the blood stream, and affects acetylcholine release at the presynaptic level. Less than one microgram of toxin can cause death.

The growth of *Clostridium botulinum* is inhibited by nitrites. In the intestinal lumen, bacteria convert nitrites to nitrosamines, which are potentially carcinogenic. This is a potentially worrisome condition, although the amount of nitrites ingested daily is usually far less than the amounts of nitrosamine produced daily by indigenous gut flora. It is currently believed that the benefit of botulism prevention by nitrites outweighs the risk of potential carcinogenesis.

The diagnosis of botulism is enhanced by clinical awareness and the knowledge that the patient has consumed home canned food. Diagnosis is confirmed by injecting a group of mice with the food in question, some of the mice having been treated with botulism antisera. Mortality of the untreated mice, but not the treated mice, makes the diagnosis. Treatment of the patient is supportive and includes use of a respirator. Immediate injection of polyvalent antiserum is required.

Prevention of botulism includes thorough washing of foods prior to home canning, and boiling to kill organisms which have not yet sporulated. Addition of nitrites prevents growth of the organism. Cooking the food prior to eating is also recommended as the neurotoxin is inactivated by heat.<sup>1,2</sup>

#### ***Clostridium Perfringens* (Welchii)**

*Clostridium perfringens* (welchii) is a normal inhabitant of the colon, but produces an enterocolitis when ingested in large numbers. Illness occurs at picnics or banquets. Meats, poultry, soups or gravies can be contaminated. Symptoms of abdominal pain, diarrhea, gas and cramps occur 8-24 hours after consumption of contaminated food. Nausea and fever occasionally occur. Symptoms are usually mild.

Food contaminated with this organism is ingested and in the environment of the distal small bowel and colon spores are formed. As they form, a toxin is liberated which has an action similar to the cholera enterotoxin, resulting in the accumulation of fluid in the bowel lumen. The toxin, a protein of molecular weight 36,000, is not inactivated by digestive enzymes, but is inactivated by heat.

Diagnosis is made by finding the organism in the food, or in the stool in concentrations of  $10^6$ /gm feces, or greater. Treatment is supportive as the illness is mild and recovery is within one day. Prevention is effected by not allowing food to stand for long periods of time at ambient temperatures after cooking, as the organism multiplies between 25-50 degrees Centigrade. After cooking, oxygen is driven off from the center of the food leaving an anaerobic medium. Refrigerating until the food is ready to be served thwarts proliferation of the organism.<sup>3</sup>

#### ***Bacillus Cereus***

*Bacillus cereus* is an aerobic, spore-forming, motile gram positive rod. It exists in nature with grains and dairy products. It is a common spoilage organism. It has been associated with food borne illness associated with soups, cooked meats, potatoes, vegetables, vanilla sauce cereals, puddings and fried rice.

There are two symptom complexes associated with this organism. One is an illness beginning 10 to 12 hours after ingestion and is very similar to that produced by *Clostridium perfringens*. The other is similar to the Staphylococcal gastroenteritis and begins one to six hours after ingestion. This is usually attributed to eating contaminated steamed or fried rice, often in a Chinese restaurant.

The pathogenesis of the latter illness is related to the survival of spores after rice is cooked. As the rice is allowed to stand to cool, the organisms proliferate at an optimum temperature of 30 to 37 degrees Centigrade. It is estimated that  $10^8$  organisms/gm of rice are necessary to evoke illness. In the upper G.I. tract, *Bacillus cereus* liberates a phospholipase C which reacts with host lecithin producing phosphorylcholine which triggers the symptoms.

Diagnosis is made by finding the organisms in the contaminated food. Treatment is supportive as the illness rarely exceeds 24 hours. Prevention is accomplished by refrigeration of food after cooking and not allowing food or rice to remain at ambient temperatures for prolonged periods.<sup>3,4</sup>

#### ***Salmonella Food Poisoning***

*Salmonella* food poisoning is the most important food borne disease occurring in the United States with about two million cases annually. Foods involved have included meat, eggs, dehydrated foods, milk, fowl, coconuts, instant cereals and chocolate candy. Symptoms commence 8 to 72 hours after ingestion, but typically within 12 to 18 hours, and consist of nausea, diarrhea, fever, abdominal pains, chills and prostration. The degree of symptoms depend on the host's state of health and the organism load. The mortality rate is under one percent. Recovery is usually within three days.

*Salmonella* reside in farm animals and are spread to others via offal or ingestion of contaminated excreta. Humans contract the disease by consuming improperly cooked animal products, because adequate heat destroys the organism. Few organisms are sufficient to initiate illness. In the small bowel, the *Salmonella* invade the mucosa, and elaborate an enterotoxin which stimulates fluid secretion into the lumen. Fever is a concomitant of mucosal invasion and occasionally, bacteremia occurs.

Diagnosis is readily made by stool culture. *Salmonella* do not ferment lactose and are easily identified in the general laboratory. Treatment is supportive. Antibiotics are employed only if the illness is severe or if bacteremia is demonstrated. In the routine case, use of antibiotics may enhance the development of the carrier state.

Human carriage of *Salmonella* can develop after the disease is over, resulting in a potential focus for further

case dissemination. The organism then often resides in the gallbladder, yet cholecystectomy does not invariably result in eradication of the carrier state. Administration of antibiotics, such as Ampicillin, for weeks or months, followed by cholecystectomy, may be effective in eliminating the carrier state. Salmonella carriers should not be permitted to be food handlers.

Prevention is accomplished by proper cooking of food, particularly meat products, fowl and eggs. The presence of salmonella in food is difficult to detect beforehand as the flavor and color of the food is not altered by the presence of the organism. As flies can carry the organism, they should be kept away from food.<sup>2,5</sup>

#### Chinese Restaurant Syndrome

Two types of illness occur with a degree of frequency after eating in a Chinese restaurant. The first, described earlier, is an upper gastrointestinal syndrome which occurs after eating rice contaminated with *B. cereus*. The second is an illness characterized by a burning sensation over the upper part of the body, facial pressure, chest pain and headache. The symptoms begin over the chest, and spread to the neck, shoulders and arms and may spread to the abdomen and thighs. This symptom complex begins within seconds or minutes of ingesting food containing a large amount of monosodium glutamate, which is employed as a seasoning or tenderizing agent. A gram of this chemical may be used for serving. The symptom complex may mimic a myocardial infarction. It can last several hours. There is no response to Benadryl or Aspirin.

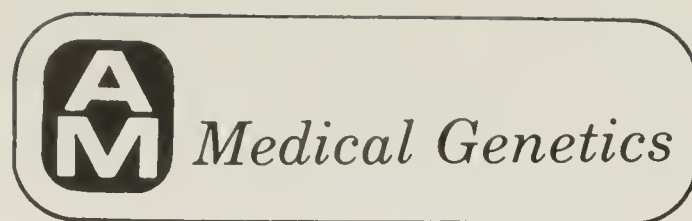
#### Miscellaneous

A large number of other causes of food borne disease are known. Bacterial etiologies include *Shigella*, *E coli*, *Yersin's enterocolitica*, and *Vibrio parahemolyticus*. Hepatitis is the most common of the viral etiologies, with hepatitis A occurring at times in large numbers. Trichinosis and the fish tapeworm are parasitic causes. Many fish contain chemicals in their muscles which are inherently toxic to man.

Prevention of most of these illnesses can be effected by sanitary conditions of food handling and adequate cooking of the food. Prompt refrigeration after cooking which inhibits growth of organisms as food cools at room temperature will likewise result in illness prevention. Allowing people to enjoy the summer sun, but not allowing food to stand in it, will eventuate in more healthful barbecues, picnics and parties.

#### References

1. Gilbert RJ: Staphylococcal food poisoning and botulism. *Postgrad Med J* 50:603-11, 1974.
2. Foster EM: Foodborne hazards of microbial origin. *Federation Proceedings* 37:2577-81, 1978.
3. Hobbs BC: Clostridium welchii and Bacillus cereus infection and intoxication. *Postgrad Med J* 50:597-602, 1974.
4. Terranova W, Blake PA: Bacillus cereus food poisoning. *New Eng J Med* 79:143-4, 1978.
5. Zottola EA: Food-borne disease. *NYS J Med* 79:146-7, 1979.
6. Schaumburg HH, Byck R, Gerstl R, et al: Monosodium L-glutamate: Its pharmacology and role in the Chinese restaurant syndrome. *Science* 163:826-8, 1969.



## Immunogenetics and Immunology

### I. Key to the Future

Donald J. Kuban, M.D., M.S.  
Theona Vyvial  
Barbara Kaiser-McCaw, Ph.D.  
Frederick Hecht, M.D.

Editor:  
Frederick Hecht, M.D.

The concept of immunology as an antigen-antibody interaction was portrayed as an interacting lock and key in the not too distant past. Antigens and antibodies had reciprocal and complementary geometric shapes which fit together. Concepts progressed through the double helix of Watson-Crick to present day molecular biology.

The lymphocyte enters the scene as the pivotal cell in the immune reaction. This cell was once thought to be an old, dying, dead or senescent cell. Its sole role was to be counted in a differential as an aid in the diagnosis of such diseases as infectious mononucleosis. The 1960s saw the lymphocyte assume the role of a totipotential cell as the center of the recognition of "self" versus "nonself" and thus the immune response.

In historical perspective, the early 1920s saw the correlation between transfusion-associated reactions and the white blood cells. The term "leucoagglutinins" was first used in 1925. The next significant step was that of J. Tibor Greenwalt who in 1957 devised a method to decrease these reactions by producing buffy poor blood. This was accomplished by passing anticoagulated blood over nylon wool fibers to remove most of the white blood cells which would adhere to the fibers due to phagocytosis.

From: The Genetics Center in the Southwest Biomedical Research Institute, 123 East University Drive, Tempe, Arizona 85281. (Dr. Kuban, Ms. Vyvial, Drs. Kaiser-McCaw and Hecht). And from the Phoenix Indian Medical Center, Dr. Kuban.



Interest on transplantation genetics dates back to the early 1940s. The fire bombings of England in World War II created a great need for knowledge and expertise in skin grafting of extensive burns. The work in transplantation immunology by Billingham, Brent and Medawar in these endeavors led to their receipt of the Nobel Prize in medicine.

In the late 1950s and early 1960s numerous workers in various laboratories around the world were developing techniques to test for the antigen-antibody system involving human tissues and white blood cells. The H-2 system was already known in the mouse, and was the key animal model in transplantation genetics.

In 1958 Jean Dausset in Paris identified the first HLA antigen which was termed the "MAC" antigen. Later this became HLA-2. HLA-2 is the most common HLA antigen with a gene frequency in the Caucasian population of approximately fifty percent. Dr. Dausset received the Nobel Prize in 1980 for his pioneering work with "MAC."

Due to wide activity in human genetics, the first international meeting on commonality in testing and nomenclature was held in 1964. There was no standard test methodology nor was there an agreed upon nomenclature. Workers around the world used a variety of systems to name the antigens and corresponding antibodies identified in their laboratories. Communication and exchange of reagents was impossible without a common basis.

The second international meeting on tissue typing was held in 1965. Laboratories from around the world sent representatives to test for antigens on a common panel of human lymphocytes. Each laboratory was to use its own test methodology and reagent antisera.

Following the 1965 meeting extensive computer analysis was performed on the cumulative assembled data by Dr. Ray Mickey in the laboratory of Dr. Paul Terasaki at UCLA in Los Angeles. This resulted in the establishment of the first standardized nomenclature for the HLA or Human Leucocyte Antigen system. Eleven antigens were listed as agreed upon. These were 1,2,3,5,7,8,9,10,11,12 and 13. Although other antigens and corresponding antibodies were recognized, acceptance into the international HLA nomenclature awaited future meetings.

The original eleven antigens of the HLA system were assigned to one of two allelic positions (gene loci) on the chromosome in the late 1960s. These positions were designated HLA-A and HLA-B. HLA-A contained antigens 1,2,3,9,10, and 11, while HLA-B contained antigens 5,7,8,12 and 13. It was on this basis that the wave of organ transplantation increased in the 1960s cresting in world-wide renal and, more recently, cardiac transplantation.

International meetings on histocompatibility testing have been held biannually since 1965. These meetings greatly speed communications in a rapidly developing area of scientific knowledge and expertise. More

importantly, each meeting results in additional antigen being added to the international HLA system.

A commonly used and agreed upon test methodology was the lymphocyte cytotoxicity test as developed by Dr. Terasaki in 1964. There are various modifications of this test. The basic test is performed with one lambda (0.00 ml.) quantities each of lymphocyte cell suspension and antisera. The test is performed in special reaction chamber "wells" under mineral oil to prevent evaporation. Following incubation at room temperature rabbit serum is added as a source of complement. After a second period of incubation, a vital dye is added for the final reading. This dye helps to differentiate the living and dead cells. The end point of a positive test is cell death since the system is based on cytotoxicity. Each antigen is defined by one or more antisera each specific for the corresponding antigen.

The antibody-containing reagent antisera are exclusively of human origin. One early source of antisera was from immunization with multiple intradermal injections of human white blood cells or postage stamp sized skin grafts. This method is not in use today. A second source of antisera is from multitransfused patients, especially those requiring repeated transfusions over a long period of time. The third and most widely used source of antisera is from multiparous women. Immunization occurs when white blood cells traverse the placenta from fetus into the maternal circulation. The fetal white blood cells carry one-half of their genetic material from the paternal source. This paternal antigenic component is recognized as foreign or "nonself" to the maternal system. It is through repeated pregnancies and exposure to the same set of paternal antigens that antibodies are formed directed against the paternal antigens. There is no commercial source of all HLA antisera. Two serum banks exist, one in Europe and one in the United States at the National Institutes of Health in Bethesda, Maryland. Most laboratories identify antisera and participate in informal exchanges. It was due to the short supply of the antisera that micro-test methodology was developed.

Today the number of defined HLA antigens approaches eighty. Yet with this greater definition of the HLA system, successful organ transplantation is not guaranteed since yet unknown factors await detection.

The HLA system has contributed to knowledge of human genetics. Prior to conception, meiosis insures that each ovum and sperm contain one-half the chromosome complement of the somatic or body cell. Meiosis splits the paired forty-six chromosomes of the somatic cells. With fertilization of the ovum by the sperm, the twenty-three chromosomes contained in each germ cell are doubled and so maintain the somatic cell human species constant of forty-six chromosomes.

The HLA genes are now known through gene mapping studies to be located on the short arm of chromosome 6. The HLA genes are part of the major

stocompatibility complex on that chromosome segment. Research to map the precise genetic distances between the HLA genes and the centromere of chromosome 6 (the point at which the spindle fibers of the cell attach to chromosome 6 in cell division) is underway. To date, the information indicates that the HLA genes are close to the centromere, the point of spindle fiber attachment on chromosome 6.

Additional gene positions in the HLA system were proposed by 1970 and were subsequently confirmed. HLA-C and HLA-DR brought to four the number of serologically determined antigen positions on the chromosome. HLA-DR is the serologic analog to a fifth locus known as D. D is the locus controlling the MLC or mixed lymphocyte culture test system which is used in living related organ donors.

It is apparent that with two paired chromosomes inherited from each parent, each having allelic HLA positions, A, B, C, D and DR, there is possible a total of sixteen HLA antigens. If both antigens are identical at any one of the allelic positions, the test system will detect only a single HLA antigen since it cannot distinguish between a single or double factor at an allelic locus.

The applications of HLA and other immunogenetic studies will be addressed in following articles. These immunogenetic and immunologic tests have proven of value to surgery, rheumatology, oncology, allergy and many other areas of medicine. They are keys to the future.

#### References

1. Perkins HA: Concise review: Current status of the HLA system. *Am J. Hemat* 6:285-292, 1979.
2. Bach FH, Van Rood JJ: The major histocompatibility complex - genetics and biology (1st of 3 parts). *New Engl J Med* 295:806-813, 1976.
3. Bach FH, Van Rood JJ: The major histocompatibility complex - genetics and biology (2nd of 3 parts). *New Engl J. Med* 295:872-878, 1976.
4. Bach FH, Van Rood JJ: The major histocompatibility complex - genetics and biology (3rd of 3 parts). *New Engl J Med* 295:927-936, 1976.
5. Terasaki PI, Bernoco D, Parks MS, et al: Microdroplet testing for HLA-A, -B, -C, and -C antigens. *Am J Clin Path* 69:103-120, 1978.
6. Moore SB: Subject review - HLA. *Mayo Clin Proc* 54:385-393, 1979.



# Treatment of Prostatic Carcinoma

Silvio A. Aristizabal, M.D.

Del V. Steinbronn, M.D.

#### Editors:

David S. Alberts, M.D.

Ellen M. Chase, B.S.

#### Introduction

Carcinoma of the prostate is the third most common cause of cancer deaths in the American male population today.<sup>1</sup> It also ranks as a leading cancer in European, Japanese, and Jewish male populations. The peak age of occurrence is the sixth and seventh decades. However, in some major series, up to 10% of the cases are patients in the fourth decade.<sup>2</sup> Adenocarcinoma accounts for more than 95% of all cases of prostatic carcinoma in most series, with rare cases of transitional cell, squamous cell, and metastatic carcinoma. At the University of Arizona Health Sciences Center (AHSC) and Tucson Veterans Administration Medical Center (VAMC) over 95% of the 50-60 new cases of carcinoma of the prostate diagnosed yearly are adenocarcinoma.

Presently, we are using the Memorial system to stage our prostatic carcinomas.<sup>3</sup> This system defines stage A as tumors without palpable nodules which are recognized at the time of histologic examination of the tissue. Stage B tumors are those in which a palpable firm nodule is recognized prior to biopsy with confirmation of cancer on histologic section. Stage C carcinoma of the prostate is that which is locally advanced without evidence of distant metastases. This includes those cases which are found to clinically involve the seminal vesicles or to have penetrated through the prostate capsule on rectal digital examination and involve immediately surrounding peri-prostatic tissues. Stage D carcinoma of the prostate is defined as disease with distant metastasis at the time of diagnosis. Spread to any of the

From: University of Arizona Health Sciences Center, Tucson, Arizona 85724. Dr. Aristizabal is Associate Professor of Radiology and Dr. Steinbronn is a Resident in the Division of Radiation Oncology. Reprint Requests to Dr. Aristizabal.



pelvic lymph nodes, base of the bladder, or bone, or signs of systemic activity based on serum acid phosphatase elevations, would also place patients in the stage D category. Approximately 20%-25% of our new cases are stage A and B, whereas approximately 40%-50% are stage C and the remainder are stage D.

Proper staging evaluation must include histologic proof of carcinoma of the prostate, serum acid phosphatase and alkaline phosphatase determinations, bone scan, and intravenous pyelogram. This is the staging evaluation used at AHSC-VAMC. Optional diagnostic evaluation could include a computerized tomography (CT) scan of the abdomen and pelvis, and extraperitoneal pelvic lymphadenectomy. The World Health Organization believes that carcinoma of the prostate can be firmly diagnosed without histologic evidence if there is a classical hard, indurated prostate gland associated with multiple osteoblastic bony lesions on routine x-rays. We have found only a very rare case in which we were not able to recommend and obtain tissue confirmation of our suspected diagnosis of carcinoma of the prostate prior to initiating therapy, as most patients' medical conditions will allow them to undergo either transperineal or transrectal needle biopsy of the prostate under local anesthesia.

A few pitfalls in the diagnostic evaluation which are not infrequently seen should be mentioned for the sake of completeness. These include serum acid phosphatase levels which can be falsely increased after a digital prostate exam. If there is any question that an elevated acid phosphatase level could have been caused by digital examination, 24 hours should elapse between any examination of the prostate and additional serum being obtained for acid phosphatase determinations.

Another commonly obscure fact is that transrectal or transperineal needle biopsies are approximately 70% accurate primarily because of sampling error when performed by experienced urologists.<sup>4</sup> Repeat biopsies may be necessary to further substantiate or refute a suspected clinical impression of carcinoma, with open perineal biopsy being the most accurate method of diagnosis.<sup>5</sup> However, in our experience, only rarely will open biopsy be necessary in a case where repeat needle biopsies have failed.

Radionuclide bone scans are routinely obtained. They are usually of high quality and reliability; however, not infrequently an isolated area of increased radionuclide activity occurs which must be correlated with routine diagnostic x-ray to negate or confirm obvious metastatic bony involvement. If the acid phosphatase level is normal, it is our usual policy to treat the patient as if the disease were limited in extent. Such false positive areas on the bone scan can represent any area of increased inflammation, such as old or recent trauma and arthritis.

Routine bone marrow biopsy with associated bone marrow acid phosphatase determination was popular several years ago. However, it has been shown by several independent observers to be of minimal

diagnostic value and has been dropped altogether from the diagnostic workup at our center and at most centers around the country.<sup>6</sup>

Pelvic lymphadenectomy is currently used at our institution and at other institutions with varying degrees of enthusiasm. It certainly seems to be a very valuable diagnostic aid and offers the most accurate method of staging prostatic carcinoma from a regional standpoint;<sup>7</sup> however, it also carries with it a modest morbidity. Associated complications of this procedure include lymphocele, hematoma, and wound infection, as well as the general risks associated with hospitalization and anesthesia in an elderly population, including thrombophlebitis, pulmonary emboli, and myocardial infarction. Even though these complications occur only occasionally, we feel that we cannot recommend this procedure for every patient. Currently, we are performing it on approximately 10%-20% of the eligible patients with clinical stage A, B, and C lesions, with essentially no mortality and very limited morbidity. In our opinion, it is a diagnostic procedure only and has very limited therapeutic value, if any, because all the pelvic lymph nodes at risk for metastasis can not be removed, with the presacral nodes being the most obvious ones. Removal of these nodes is never attempted in the routine pelvic lymphadenectomy.

## Treatment Modalities

### Surgery

Traditionally, patients with carcinoma of the prostate in early stages (A and B) have been offered radical prostatectomy. Patients with stage C or D disease have been treated with hormonal manipulation, with recurrent episodes of local urinary outlet obstruction being controlled with repeated transurethral resections. Presently, radical prostatectomy is used in approximately 10% of the 50-60 new cases of stage A-C adenocarcinoma of the prostate which are newly diagnosed at AHSC and VAMC each year.

Radical prostatectomy does offer curative potential in all stage A and B lesions and a small opportunity of cure in stage C disease.<sup>8</sup> There are many series indicating cure rates of 65%-85% after radical surgery in stage A and B disease,<sup>8-11</sup> and it is to these statistics that all other modalities of treatment offering curative potential must be compared. (See Table 1.) Radical prostatectomy, even when performed by an experienced urologist, is a major undertaking for the patient and the doctor alike. It carries with it a 0%-5% mortality rate, a 95%-100% probability of impotence, and a 10%-50% chance of significant urinary incontinence.<sup>13</sup> However, major advantages of this approach include a relatively short time interval of treatment and complete and total removal of the cancer with its associated psychological benefits. Also, there is easy access to pelvic lymph nodes for prognostic information during the surgical procedure if a lymphadenectomy is performed simultaneously.

**Table 1**  
**Prostatic Carcinoma**  
**Long-Term Survival and Treatment Modality**

| Age | Treatment    | No. of Pts. | % Survival |         |         |
|-----|--------------|-------------|------------|---------|---------|
|     |              |             | 5 Yrs.     | 10 Yrs. | 15 Yrs. |
|     | Surgery*     | 475         | 80         | 50      | 35      |
|     | Irradiation† | 348         | 77         | 58      | 20      |
|     | Surgery°     | 213         | 64         | 36      | 20      |
|     | Irradiation† | 352         | 53         | 30      | 20      |

ewett, et al.<sup>11</sup> †Bagshaw<sup>12</sup> °Schroeder and Belt<sup>8</sup>

### Radiation Therapy

Over the past fifteen years, with the advent of megavoltage radiation, the emphasis throughout most major cancer treatment centers, including ours, has shifted from radical surgery toward curative irradiation. Adenocarcinoma of the prostate was for many years considered radioresistant.<sup>14</sup> In reality, it is both radiosensitive and locally radiocurable. Because many tumors have a slow rate of regression, it may take several weeks to several months for them to disappear following adequate doses of irradiation.

Results from several large series of patients treated with radiation and followed for 4-7 years compare favorably stage by stage with surgical results as shown in Table 2. Control of the local tumor is accomplished in most of the cases.

Since radiation therapy has several advantages over radical surgery (the incidence of impotence is lower, urinary incontinence is rare, and treatment is psychologically less stressful in the elderly), it is becoming increasingly popular for stages A<sub>2</sub> and B. In patients with more advanced disease (stage C and D) in whom radical surgery is considered to have no curative role, radiation still offers a good chance of controlling the local tumor and can be curative if the tumor is truly localized.

External pelvic irradiation when properly administered and fractionated results in tolerable mild reactions during treatment, especially when the irradiated volume is confined to the prostate gland with an adequate margin. When the regional lymph nodes are included in the treated field, a larger volume containing small and large bowel is irradiated, and tissue reactions and complications increase significantly.

At AHSC, we use external beam radiation therapy with 4 or 10 MV photons in treating prostatic carcinoma in stages A<sub>2</sub>-C. Less than 10% of our patients undergo radical prostatectomy and only approximately 10%-20% undergo staging pelvic lymphadenectomy. Over the past eight years, our survival rates and local failure rates for stage B and C adenocarcinoma of the prostate treated with radiation have compared favorably with other major series in the literature with a 5-year survival rate of greater than 75% and a local failure rate of less than 10%. (See Table 3.) However, during this treatment

**Table 2**  
**Adenocarcinoma of the Prostate**  
**Results with Primary Radiotherapy**

| Institution                                | Stage | No. of Pts. | % Local Control | % Survival |         |         |
|--------------------------------------------|-------|-------------|-----------------|------------|---------|---------|
|                                            |       |             |                 | 5 Yrs.     | 10 Yrs. | 15 Yrs. |
| Stanford Univ. <sup>12</sup>               | B     | 348         | 87              | 77         | 58      | 20      |
|                                            | C     | 352         |                 | 53         | 30      | 20      |
| Washing-<br>ton Univ. <sup>15</sup>        | B     | 42          | 93              | 80         |         |         |
|                                            | C     | 153         | 75              | 56         |         |         |
| M.D.<br>Anderson<br>Hospital <sup>16</sup> | B     | 4           | 100             | 100        |         |         |
|                                            | C     | 150         | 87              | 67         |         |         |
| Univ. of<br>Arizona                        | B     | 65          | 95              | 86         |         |         |
|                                            | C     | 53          | 92              | 77         |         |         |

interval there have been two different philosophies existing about treatment volumes at our center. More than 100 patients have been treated with volumes of 9 x 9 cm or less, while the remaining patients have been treated to tolerance doses of 4500-5000 rads to the whole or the true pelvis, with an attempt to cover the first echelon of drainage lymph nodes with a cone down boost of the primary tumor. When these two groups are compared matching ages and grades of tumor, there seems to be no survival or local control benefits gained from irradiating the larger volumes. Our preliminary observation that increasing treatment volumes does not seem to alter overall survival or local control results is further substantiated in a recent publication by Whitmore and Hilaris.<sup>17</sup> They reported that patients found to have nodal involvement at the time of staging lymphadenectomy and subsequently treated with external beam radiation to pelvic nodes to tolerance dose were not being cured and failed with progressive distant metastases.

### Interstitial Irradiation

Injection of radioactive solutions (Au<sup>198</sup>) into the prostate gland has been used in the past with various degrees of success.<sup>18</sup>

A more recent approach is the implantation of radioactive iodine seeds (I<sup>125</sup>) usually preceded by

**Table 3**  
**Adenocarcinoma of the Prostate**  
**Results of Primary Radiotherapy**  
**In 130 Patients**

| Stage | Number | Local Control (%) | Survival (%)* |
|-------|--------|-------------------|---------------|
| A     | 5      | 5/5 (100)         | 5/5 (100)     |
| B     | 65     | 62/65 ( 95)       | 56/65 ( 86)   |
| C     | 53     | 49/53 ( 92)       | 41/53 ( 77)   |
| D†    | 7      | 6/7 ( 86)         | 4/7 ( 57)     |

\*Median follow-up - 48 months. (Minimum 3 year follow-up; maximum 7 year follow-up.) Four patients lost to follow-up.

†Positive nodes or abnormal lymphangiography or elevated acid phosphatase.



staging laparotomy and pelvic lymphadenectomy. The procedure, which is still considered experimental by its author,<sup>19</sup> is followed by external irradiation if the nodes contain metastatic carcinoma. The superiority of this approach over radical prostatectomy rests on the preservation of sexual potency in 90% of the cases, the lower incidence of urinary incontinency, and the applicability of the procedure to patients with stage C tumors. The main advantages over small-field radiotherapy are the increased accuracy of the staging and the possibility of delivering a high radiation dose to a limited volume with a lower incidence of impotence. However, the morbidity of the implant combined with lymphadenectomy is significantly higher,<sup>20</sup> the control of the local tumor is lower, and a very skillful integrated team of urologists, radiotherapists, and radiation dosimetrists is necessary.

In summary, long-term results of external supervoltage irradiation compare favorably stage by stage with those obtained with radical prostatectomy. Moreover, radiotherapy has a wider applicability since it can be used for patients in all stages who are medically inoperable and control of the local disease can be obtained in the majority of patients with limited morbidity and better preservation of sexual potency.

#### References

1. Ashley DJB: On the incidence of carcinoma of the prostate. *J Pathol Bacteriol* 90:217-224, 1965.
2. Ray GR, Cassady RJ, Bagshaw MO: Definitive radiation therapy of carcinoma of the prostate. A report on 15 years of experience. *Radiology* 106:407-418, 1973.
3. Whitmore WF Jr: Hormone therapy in prostatic cancer. *Am J Med* 21:697-713, 1956.
4. Kaufman JJ, Schultz JJ: Needle biopsy of the prostate: A reevaluation. *J Urol* 87:164-168, 1962.
5. Hudson PB, Finkle A, Hopkins JA, Sproul EE, Stout AP: Prostatic cancer: XI. Early prostatic cancer diagnosed by arbitrary open perineal biopsy among 300 unselected patients. *Cancer* 7:690-703, 1954.
6. Bagshaw MA, Pistenma DA, Ray GR, Freiha FS, Kempson RL: Evaluation of extended-field radiotherapy for prostatic neoplasm: 1976 progress report. *Cancer Treat Rep* 61:297-306, 1977.
7. Paulson DF, and Uro-Oncology Research Group: The impact of current staging procedures in assessing disease extent of prostatic adenocarcinoma. *J Urol* 121:300-302, 1979.
8. Schroeder FH, Belt E: Carcinoma of the prostate: A study of 213 patients with stage C tumors treated by total perineal prostatectomy. *J Urol* 114:257-260, 1975.
9. Boxer RJ, Kaufman JJ, Goodwin WE: Radical prostatectomy for carcinoma of the prostate: 1951-1976. A review of 329 patients. *J Urol* 117:208-213, 1977.
10. Correa RJ Jr, Gibbons RP, Cummings KB, Mason JT: Total prostatectomy for stage B carcinoma of the prostate. *J Urol* 117:328-329, 1977.
11. Jewett HJ, Bridge RW, Gray GF Jr, Shelley WM: The palpable nodule of prostatic cancer - results 15 years after radical excision. *JAMA* 203(No. 6): 115-118, 1968.
12. Bagshaw MA: Radiotherapy of Prostatic Carcinoma. Proceedings of the 22nd Annual American Society of Therapeutic Radiologists Meeting, Dallas, Texas, Vol. 6:1327, 1980.
13. Nichols RT, Barry JM, Hodges CV: The morbidity of radical prostatectomy for multifocal stage I prostatic adenocarcinoma. *J Urol* 117:83-84, 1977.
14. Paterson JRK: The Treatment of Malignant Disease by Radiotherapy. Second edition, Baltimore, Williams & Wilkins, pp. 1-11, 1963.
15. Perez CA, Walz BJ, Zivnuska FR, Pilepich M, Prasad K, Bauer: Irradiation of carcinoma of the prostate localized to the pelvis. Analysis of tumor response and prognosis. *Int J Rad Onc Biol Phys* 6:555-563, 1980.
16. Neglia WJ, Hussey DH, Johnson DE: Megavoltage radiation therapy for carcinoma of the prostate. *Int J. Rad Onc Biol Phys* 2:873-882, 1977.
17. DeCosse JJ Jr, Montie J, Whitmore WF, Grabstald H, Hilaris B (Surgical Grand Rounds) Carcinoma of the prostate: Treatment with pelvic lymphadenectomy and Iodine-125 implants. *Clin Bulletin* 9:24-31, 1979.
18. Flocks RH: Present status of interstitial irradiation in managing prostatic cancer. *JAMA* 210(No.2): 328-330, 1969.
19. Hilaris B: Interstitial Irradiation with Iodine-125 in Cancer of the Prostate. First Annual Henschke Memorial Lecture, American Endocurietherapy Society Winter Meeting, Lake Tahoe, Nevada, February 10-13, 1981.
20. Folwer JE Jr, Barzell W, Hilaris BS, Whitmore W: Complications of <sup>125</sup>Iodine implantation and pelvic lymphadenectomy in the treatment of prostatic cancer. *J Urol* 121:447-451, 1979.



## The Sexually Abused Child: Evaluation and Treatment

Maureen H. Niggemann, M.D.  
Mary E. Rimsza, M.D.

Editor:  
Melvin Cohen, M.D.

### Abstract

Evaluation of the sexually abused child requires careful age-appropriate history taking and a complete physical examination. The primary care physician plays an important role in the diagnosis and management of these children. The physician caring for a sexual abuse victim should be prepared to diagnose and treat physical trauma, venereal disease and pregnancy. If a victim is seen within seventy-two hours of an assault, appropriate forensic specimens must also be collected.

**Key Words:** incest, rape, child abuse.

Childhood sexual abuse is defined by C. H. Kempe as "the involvement of dependent, developmentally immature children and adolescents in sexual activities that they do not fully comprehend, to which they are unable to give informed consent, or that violate the social taboos of family roles."<sup>1</sup> At Maricopa County General Hospital (MCGH) in Phoenix, Arizona over three hundred children were evaluated for sexual abuse from April 1977 through August 1980 (Figure 1). This article presents two typical case reports of sexually abused children and describes the approach used in evaluating and treating the patients.

From: University of Arizona Health Sciences Center, Department of Pediatrics, Tucson, Arizona 85724 and Maricopa County General Hospital, Department of Pediatrics 2601 E. Roosevelt, Phoenix, Arizona 85008. Reprint requests to Dr. Rimsza, Department of Pediatrics, Maricopa County General Hospital, 2601 East Roosevelt, Phoenix, Arizona 85008. Supported by: Maricopa County Research Foundation.

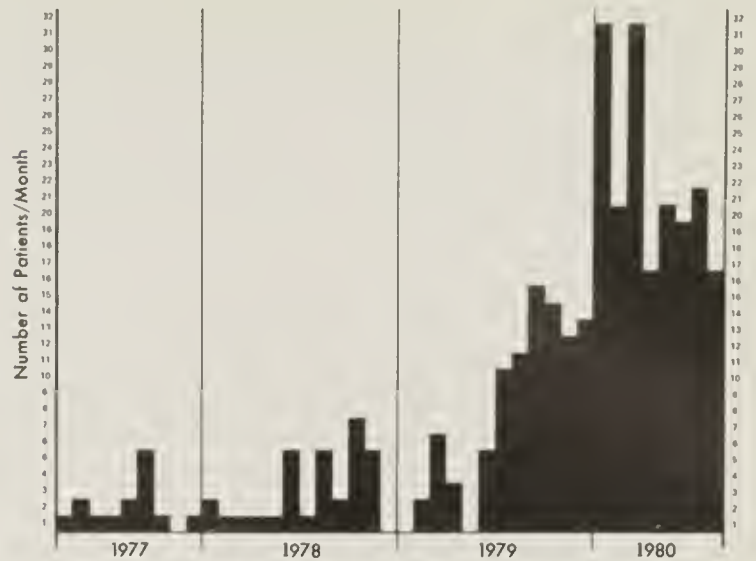


FIGURE 1: SEXUAL ABUSE PATIENTS EXAMINED AT MARICOPA COUNTY GENERAL HOSPITAL FROM APRIL 1977 TO SEPTEMBER 1980

### Case Reports

#### Case No. 1

A sixteen-year-old female was accompanied to MCGH Pediatric Outpatient Department by a Child Protective Services (CPS) worker after revealing to her teacher eight years of sexual abuse by her father. At age eight the sexual abuse began with genital fondling and progressed to vaginal intercourse by age twelve. Sodomy and oral-genital contact had also occurred. The episodes took place approximately every two weeks while the patient's mother was out of the home and her sisters were asleep. The most recent assault had been ten days prior to evaluation at MCGH. The patient had also been physically abused by her father. She required outpatient treatment at a local hospital three weeks prior to our evaluation for a broken nose and two black eyes. Several of the beatings were inflicted as punishment for dating peer-age boys, which her father had forbidden.

At age fourteen the patient told her mother about the sexual abuse. The mother promised not to leave her daughter alone with the father, but did not report the sexual abuse to appropriate authorities. A church bishop and two friends had also been informed of the sexual abuse by the patient but they took no action to terminate the abuse. At age fifteen, special favors and presents, such as a new car and increased freedom, were promised by the father in order to continue the incestuous relationship.

The patient expressed ambivalent feelings about prosecuting her father. She did not recognize wrongdoing in the incest yet felt he "needs help." She was afraid to return home.

Past medical health revealed evaluation by two physicians eighteen months earlier for rectal bleeding. She had also experienced chronic vaginal discharge and sore throats.

On physical examination, the patient was very distressed and crying, yet cooperative. Genital examination revealed absence of the hymen, a marital



introitus, and lax rectal tone. A urine pregnancy test, VDRL, and cultures for gonorrhea of the throat, cervix, and rectum were negative. Forensic specimens were not obtained because the most recent assault had been ten days earlier.

Following notification of the police, the patient was placed in a foster home by CPS. Counseling was arranged for the family.

#### Case No. 2

An eight-year-old boy was brought to MCGH Pediatrics Outpatient Department by his mother after revealing that a 43-year-old male neighbor had been sexually assaulting him and his 15-year-old brother. The sexual abuse occurred approximately four times per week over a four month period and included sodomy and fellatio. It began when the neighbor befriended the boys. (The boys' father had died four years earlier.) The neighbor took the boys to baseball games and out for pizza. Thereafter, the boys spent considerable time with the assailant who continued to give them special favors such as permission to drive his car, baseball gloves, and money.

The patient's physical examination was normal with the exception of slightly lax rectal tone. Cultures of the throat, urethra, and rectum were obtained. The oral specimen was positive for gonorrhea and the patient was treated with amoxicillin and probenecid.

Following notification of the police and the CPS, the patient was discharged in the care of his mother. A referral for follow-up counseling and support was made to the Center Against Sexual Assault.

The preceding case reports illustrate several important aspects concerning sexual abuse of children and the medical evaluation of victims and families. Children of all ages and both sexes can be victims. A recent retrospective chart review of 311 children evaluated at MCGH for sexual abuse revealed an age range from two months to seventeen years with a mean age of 9.2 years. Fourteen percent of the victims were male.<sup>2</sup>

The patients in both case reports knew the assailants. Of the cases reviewed at MCGH, only 18% of the patients were assaulted by strangers.<sup>2</sup> A high incidence of known assailants among pediatric sexual abuse victims is also reported by other investigators.<sup>3,4</sup>

The cases also illustrate the chronicity of sexual abuse. Burgess and Holstrum describe several reasons why a child may not reveal the sexual assault to an adult after the first episode.<sup>5</sup> A young child may not realize that the sexual abuse is deviate behavior. In addition, fears of punishment, not being believed, being held responsible, abandonment, rejection, or disruption of the family may prevent disclosure. As seen in both case reports, there are sometimes secondary gains for the victims such as gifts, attention, or special favors that will encourage the child to remain silent about sexual abuse.

Case No. 1 demonstrates common characteristics of a father-daughter incest relationship. Typically, the

father is domineering. He is often a strict disciplinarian and physically abusive. He may become jealous when the daughter expresses interest in a boyfriend her own age. The daughter involved in an incestuous relationship frequently rebels at the time of adolescence. She prefers peer relationships and is no longer willing to endure the father's sexual abuse. Furthermore, the daughter commonly experiences ambivalent feelings toward her father. At times, the mother is aware of the incest yet fails to intervene out of fear of the consequences for her husband and their marriage. In one study of incest victims by Meiselman, 75% of the mothers failed to act effectively to terminate the incest despite knowledge of the relationship.<sup>6</sup> Other trusted adults, such as school officials, physicians, ministers, and relatives, may also fail to intervene after becoming aware of the sexual abuse.

#### Medical Evaluation

The medical interview is ideally conducted in a private room with the patient alone and with the adult alone. Specific details elicited in the interview are valuable in guiding the physical examination, collection of laboratory specimens, and follow-up care. The interview also functions as a therapeutic intervention. Children frequently take cues from adults; therefore, a calm, sensitive, and caring approach may serve to minimize or eliminate the psychological sequelae of a potentially emotionally traumatic experience. An open-minded approach is essential when interviewing the patient. Children very rarely fabricate stories of sexual abuse. In fact, the child commonly is reticent to talk about the sexual abuse out of fear, embarrassment, or unwarranted feelings of guilt.

It may be helpful to begin the interview by asking the child why she has come to the doctor. The child should be allowed to relate the incident in her own words.<sup>7,8</sup> By using the patient's vocabulary for various body parts or sexual acts, the following information should be elicited: 1) details of the assault such as who was involved, what happened, where on the body the patient was touched and with what, and evidence of erection and ejaculation by the assailant; 2) chronological aspects of the assault including date of first assault, number of assaults, and length of time since the last episode; 3) previous disclosure of the sexual abuse by the child to another person and that person's response or subsequent action; 4) sexual abuse of other family members or friends; 5) the presence of symptoms suggestive of vaginitis, urethritis, urinary tract infection, bowel problems, or pregnancy; 6) psychological disturbances which may have been precipitated by the assault such as nightmares, school problems, fears, guilt and finally; 7) specific concerns or questions of the child.

The interview must be modified depending on the child's stage of development. For instance, a young child will be unable to recall specific dates but may remember events in relation to special holidays, birthdays, or school activities. Lack of knowledge of one's own bod

and anatomical terms is also common. By asking the patient to show exactly where she was touched or by using dolls more specific information can be collected.

A complete physical examination must be done to look for non-genital trauma and non-genital sequelae of sexual abuse. The extent of the genital exam is determined by the patient's pubertal development and medical history. The examination of the external genitalia includes close inspection for erythema, discharge, lacerations of the hymen, vulva or perineum and the size of the vaginal introitus. The rectal area should be examined for erythema, lacerations, rectal tone and signs of infection. Pelvic exams are necessary if the patient is post-pubertal and coitus occurred within 72 hours of the exam. In pre-pubertal patients a pelvic exam is indicated when trauma to the vagina is suspected.

Cultures for gonorrhea should be obtained in all children evaluated for sexual abuse. The children evaluated at MCGH for sexual abuse had a 7.4% incidence of gonococcal infections. At times, positive cultures were obtained from sites not implicated by the patients' histories.<sup>2</sup> Therefore, cultures should be routinely taken from three sites in girls: throat, vagina and rectum; for boys, throat, urethral and rectal cultures should be obtained. Other recommended laboratory tests are: a clean catch urine specimen if signs or symptoms of urinary tract infection are present, a serological test for syphilis if the patient has been a victim of vaginal intercourse or sodomy, a pregnancy test on all post-pubertal females who were victims of assaults involving vaginal intercourse, and a Papanicolaou smear and viral cultures in patients with suspected genital herpes. Finally, if the patient is examined within 72 hours of the most recent assault, forensic specimens must be collected with appropriate chain of custody maintained for all specimens.

The history, physical exam, laboratory data, and opportunity for follow-up guide the choice of medications prescribed during the initial evaluation. If the patient has any signs or symptoms of venereal disease, antibiotics may be prescribed after cultures are obtained. Prophylactic antibiotics may be given if the patient is unlikely to return for follow-up. Diethylstilbestrol (DES) should be offered to post-pubertal females who are seen within 72 hours of an assault involving vaginal intercourse. A negative urine pregnancy test and an informed signed consent are necessary before DES is prescribed.

At the conclusion of the initial evaluation, information should be given to the patient and parent regarding the frequency and universality of sexual abuse. Furthermore, statements absolving the child of responsibility for the abuse should be offered. Finally, the patient needs to be informed that sex is a normal, healthy, generally pleasurable aspect of adult life and to feel free to discuss concerns about sex or the sexual assault with a trusted adult. Parents should be counseled

that sexual abuse, particularly a single assault by a stranger, does not necessarily inflict long-lasting psychological damage on the child. An exaggerated, hysterical response by adults may cause the child to assume the sexual assault has far more importance than the child originally imagined.

A follow-up visit is recommended for all victims of sexual abuse. During the follow-up visit, the child's and family's emotional adjustment can be assessed. The child may be questioned about any physical complaints, especially genitourinary symptoms. Cultures for *Neisseria gonorrhoeae* can be repeated and a serum pregnancy test obtained if indicated.

In conclusion, sexual abuse of children is a problem which may be encountered by all physicians, particularly those in primary care settings. Awareness of the problem, knowledge of its manifestations, and a thorough medical evaluation are essential to making the diagnosis of sexual abuse and providing optimal treatment for the patient and family.

#### References

1. Kempe CH: Sexual abuse: Another hidden pediatric problem. *Pediatrics* 62:382, 1978.
2. Rimsza ME, Niggemann EH: Medical evaluation of sexually abused children: A review of 311 cases. *Pediatrics* (accepted for publication March 1981.).
3. Orr DP, Prietto SV: Emergency management of sexually abused children. *Am J Dis Child* 133:628, 1979.
4. Tilelli JA, Turek D, Jaffe AC: Sexual abuse of children. *New Engl J Med* 302:319, 1980.
5. Burgess AW, Hostrum LL: Accessory-to-sex: Pressure, sex and society. In: *Sexual Assault of Children and Adolescents*. Lexington MA (ed) Lexington Books, pp. 85-98, 1978.
6. Meiselman KC: *Incest: A Psychological Study of Causes and Effects with Treatment Recommendations*. San Francisco, CA: Jossey-Bass, pp. 165-176, 1978.
7. Gorline LL, Ray MM: Examining and caring for the child who has been sexually assaulted. *MCN* p. 111, Mar-Apr, 1979.
8. Thomas JN: Yes, you can help a sexually abused child. *RN* p. 25, August 1980.





*Psychiatric  
Disorders*

# Neuroleptic Drugs and Tardive Dyskinesia

Thomas E. Bittker, M.D.

Editor:  
Thomas E. Bittker, M.D.

## Abstract

Tardive dyskinesia, a persistent choreoathetoid disorder consequent to the long-term administration of neuroleptic drugs, is emerging as a major concern to any physician who administers neuroleptic or antipsychotic agents. The syndrome is described, and steps for the appropriate use of neuroleptics are outlined.

The discovery and application of neuroleptic or antipsychotic drugs in the treatment of a wide variety of psychotic illnesses have produced revolutionary changes in the practice of psychiatry during the past twenty years. By rapidly controlling psychotic symptoms without undue tranquilization, these agents have permitted patients to leave institutional care within weeks rather than months of initial admission. They have allowed patients to be managed successfully out in the community assuming the availability of appropriate social supports. They have permitted many patients who would otherwise be dependent upon society or their families for maintenance to function effectively in their work and family roles.

From: Arizona Health Plan, 4811 North Seventh Street, Phoenix, Arizona 85014 where Dr. Bittker is Medical Director of the Medical Care Administration Division.

As with any potent drug, the use of neuroleptics has yielded hazard as well as benefit. Virtually all of the antipsychotic agents exert undesirable neurological effects. Hence the term "neuroleptic" has been generically applied to this class of drugs. Most of the early neurological effects (e.g., dystonias, pseudoparkinsonism, akathisia) remit gradually with time, with dose reduction, or by the temporary addition of antiparkinsonian drugs. However, in the past decade several investigators have described with growing alarm a choreoathetoid syndrome called tardive dyskinesia.

## Recognition

Typically tardive dyskinesia occurs after years of neuroleptic administration, although it occasionally may be seen after treatment as short as three months. The syndrome consists of abnormal voluntary movements of the orofacial region, extremities and trunk. Classically the symptoms present with an oral lingual dyskinesia manifested by a "fly-catching" movement of the tongue, licking of the lips, grimacing associated with facial tic and dystonias. It may also manifest with complex jerking and writhing movements of the extremities and trunk. Generally, the more finely coordinated areas of the body (mouth and fingers) are involved first. Although it may present when moderate to high dose

neuroleptic agents are being used, it is more likely to occur with drug withdrawal.

The diagnosis is complicated by the wide variety of abnormal movements that can occur in psychotic and recovering psychotic patients. These movements are difficult to distinguish from habit spasms, other tics, psychotic mannerisms, manifestations of senescence, or the movements associated with mouth lesions or ill-fitting dentures. The movements are virtually indistinguishable from those found in Huntington's chorea. Diagnosis is based on the appearance of the syndrome after at least three months of neuroleptic drug use.

### Pathophysiology

We do not understand precisely the pathophysiology of the syndrome. Many investigators postulate a supersensitivity of the postsynaptic dopaminergic receptors in the nigrostriatal area. This seems to be consistent with the clinical course of the disease. It is temporarily improved by increasing the dosage of neuroleptic agents; it is temporarily worsened by withdrawal. Anti-cholinergic agents may worsen it. Competitors of dopamine such as acetylcholine precursors improve the syndrome. Thus, the administration of two milligrams of physostigmine parentally will provide relief of the symptoms for several moments.

### Prevalence

Controversy surrounds the true prevalence of tardive dyskinesia. A recent, comprehensive survey of the literature<sup>2</sup> indicates that the prevalence of tardive dyskinesia has been increasing in the past decade and currently stands in excess of 25% of all chronically ill psychiatric inpatients who have been treated with neuroleptics. Of this number, two-thirds or 18% of the total have irreversible tardive dyskinesia. Assuming that approximately one-fourth of these patients may have non-drug-related dyskinesia (arising idiopathically in psychotic patients) the prevalence of persistent dyskinesia in chronic patients on neuroleptic drugs stands at 13%. Among outpatients the prevalence rate is somewhat less based on decreased total exposure to the agent.

### Treatment

The outlook for treatment of tardive dyskinesia is pessimistic at present.<sup>3</sup> There is no known agent capable of counteracting the effects of tardive dyskinesia for the long term. Physostigmine, choline, lecithin, and benzodiazepines have all been shown to improve the syndrome, at least temporarily. Since tardive dyskinesia is primarily induced by neuroleptics, withdrawal of the offending agents would be the most logical treatment. According to Quitkin et al<sup>4</sup> 90% of their patients, withdrawn from neuroleptics soon after tardive dyskinesia was detected, enjoyed a remission.

### Prevention

The most logical course in dealing with this syndrome is appropriate selection of patients for the use of neuroleptic agents, appropriate vigilance in the

recognition of the syndrome and adhering to careful informed consent procedures for any patient receiving long-term neuroleptic drugs. The following represents the distillation of the current wisdom in the psychiatric literature:<sup>1,2</sup>

1. Antipsychotic drugs should not be used in the treatment of simple anxiety, insomnia, or personality disorders.

2. Although effective in the management of nausea, neuroleptic drugs are indicated for acute nausea only when other agents have failed.

3. Neuroleptics may be effective in the management of Huntington's disease and Gilles de la Tourette's syndrome. It is also indicated for the acute management of delirium and some drug-induced psychoses.

4. The clearest indication for neuroleptics is in the management of acute and chronic schizophrenia. In these instances, however, caution is appropriate and minimization of dosage is warranted. Note that approximately one-third of chronic schizophrenics are not benefited by continued use of neuroleptic drugs. Furthermore, some patients can be well managed on very low doses in the range of one to two milligrams of haloperidol or fluphenazine or two to five milligrams of thiothixene per day.

5. The possible risk of tardive dyskinesia should be reviewed with all patients and their families whenever neuroleptics are needed for more than three months.

6. Although low doses of neuroleptic drugs have been of benefit in the management of agitated depression and delusional depression, the long-term maintenance of depressed patients on neuroleptic drugs or on neuroleptic-antidepressant combinations should be avoided. After the acute phase has passed, depressed patients should be tapered off neuroleptic drugs and the physician should attempt to manage these patients on antidepressants alone or by using non-drug treatment approaches. For depressed patients requiring sedation, but who are not delusional, amitriptyline alone, amitriptyline in combination with chlorodiazapoxide, doxepin, amoxapine or maprotiline have all proven useful. Many depressed patients may warrant discontinuation of all antidepressant agents, particularly if they have been treated for more than six months and if their depression was an isolated episode in their lives and not associated with family history of mood disorder.

7. Be particularly cautious in using neuroleptics in the elderly or in patients who have suffered brain trauma, as these patients are most susceptible to tardive dyskinesia.

### References

1. The Task Force on Late Neurological Effects of Antipsychotic Drugs: Tardive dyskinesia: Summary of a task force report of the American Psychiatric Association. *Am J Psychiatry* 137:1163-1172, 1980.
2. Jeste DV, Wyatt RJ: Changing epidemiology of tardive dyskinesia: An overview. *Am J Psychiatry* 138:297-309, 1981.
3. Jeste DV, Wyatt RJ: Tardive dyskinesia: A review of the treatment possibilities. *Psychiatric Annls* 10:26-38, 1980.
4. Quitkin F, Rifkin A, Gochfeld L, Klein DF: Tardive dyskinesia—are the first signs reversible? *Am J Psychiatry* 134:84-87, 1977.



## The Infertility Clinic

**President**  
Clyde W. Kurtz, M.D.

**President-Elect**  
John E. Oakley, M.D.

**Vice President**  
Neopito L. Robles, M.D.

**Secretary**  
Earl J. Baker, M.D.

**Treasurer**  
Clifford D. DeBenedetti, M.D.

**Past President**  
John T. Clymer, M.D.

**Executive Director**  
Bruce E. Robinson

**Publishing Committee**  
Marshall B. Block, M.D., Chairman  
Burnell R. Brown, M.D.  
George E. Burdick, M.D.  
Kenneth B. Desser, M.D.  
Benjamin K. Harris, M.D.  
Jonathan M. Levy, M.D.  
William B. McGrath, M.D.  
Jay W. Smith, M.D.  
Sidney C. Werner, M.D.

With the developing comprehensive infertility program at the University of Arizona College of Medicine, the Arizona Health Sciences Center broadens further the scope of medical care offered to the people of Arizona. As an important education goal, these patients are the base for teaching at all levels in this special area of health. The program also provides a clinical base for the collection of data to enlarge our scientific knowledge of causes and treatment effectiveness in infertility. While male infertility is the reason for childlessness in almost half of the cases, the options of insemination with treated sperm or donor insemination usually require the services of a gynecologist trained in infertility. Close cooperation with the Section of Urology is, however, an essential part of the infertility program.

The patients now being seen are equally referred from community physicians as difficult cases, or self referral with continuing or previously unevaluated problems. They are seen by full-time faculty or by senior residents working with full-time faculty. All couples undergo a routinized evaluation to obtain a data base of current and prior medical history, exposure to reproductive hazards, assessment of their reproductive physiology, sexual practice, and life style data on exercise, diet, stress and drugs. Laboratory evaluative services are done by either the Arizona Health Sciences Center clinical laboratory for routine screening, or in the research reproductive physiology laboratory. Special reproductive and infertility testing is done by the infertility staff. Since one-third of the couples with infertility resistant to treatment have multiple causes, full non-invasive evaluation is performed in all cases.

If no reasonable cause is found or if these couples fail to conceive after six months of treatment, invasive procedures such as laparoscopy and testicular biopsy are done as indicated from prior studies.

Special services available at the Center include a large pool of donors to match physical or other characteristics required by couples seeking donor insemination. Cervical mucus donors are selected for

women who are unable to produce adequate mid-cycle mucus. Both donor sperm and donor mucus are used in the laboratory to check whether the sperm or the mucus from couples with abnormal post-coital testing is abnormal.

Improvement in sperm motility and concentration by washing and suspension in nutrient solutions can be evaluated for potential use with insemination. Semen composition, mucus composition and local antibody production can be studied. Sperm storage by freezing has, as yet, little use in infertility, but a bank for storage of sperm from men about to undergo potentially sterilizing medical treatment is being developed. Identification of cause is clearly more frequent with utilization of most of these techniques, and clinical treatment can be established and evaluated for some.

Philosophically at the time of initial visit, the staff sees infertility as a couple problem more similar to a severe, disabling, potentially incurable disease than to an acute medical illness, or a trivial transient problem. Psychosocial sexual and marital distress before evaluation, and during evaluation and treatment is always present. For couples with a long-standing problem, three years of daily basal body temperature taking, sexual intercourse by the chart, menstrual grieving, and pain from the comments of friends and family about childlessness is common. There is a determined effort to provide these couples with a sense of shared problem, an adequate understanding of the reasons and possible outcome of each test and treatment regimen, and a reasonable accommodation to their needs and financial situation. Appointments for tests and treatments to be done at critical times in the menstrual cycle are scheduled and correlated to the first day of the menstrual cycle and basal body temperature curves on a cycle-to-cycle basis. It is rare that an evaluation cannot be completed within six months, though conception as a result of treatment may take much longer. Infertility couples are, above all else, hopeful. As long as a reasonable hope remains that a treatment program can work, that program is provided. If that hope diminishes to an unreasonable expectation, or the cause of their infertility lies in one of the severe areas where we have no reasonable treatment or an unidentifiable cause,

patients are counseled in alternatives. Paramount in this is refocusing of their energy to the rest of their lives by ceasing specific conception aimed activities, and accepting the diminished but realistic hope appropriate for their specific case.

The model has proved to be a most well received educational experience and valued research resource for a very difficult but common clinical problem.

Arizona Health Sciences Center  
 Diane S. Fordney, M.D.  
 Associate Professor  
 Department of Obstetrics  
 and Gynecology  
 Louis J. Kettel, M.D., Dean  
 College of Medicine.

*Proc. Natl. Acad. Sci. USA Vol. 78, No. 1 pp. 574-578, January 1981, Medical Sciences*



## Correspondence

Editor:

This is a response to the editorial of May 1981 in *Arizona Medicine* entitled "Holistic Medicine: Is it all Good?"

In Dr. Block's comments he states that many of the methods which we are using are bizarre and unscientific. We would like to respond to these individually.

1. Hair analysis and research into mineral metabolism has been extensively documented and researched from such institutions as the Cleveland Clinic where Dr. William Strain has promoted hair analysis as a useful tool in medical practice. Hundreds of references in the medical literature are available in any medical library.

2. Megavitamin therapy. A recent article from the Proceedings of the National Academy of Science in U.S.A.\* reported a significant gain of IQ for mentally retarded children, averaging 20 points over a four month period of time when they were administered megavitamin therapy. This is just one paper among many published in prestigious scientific journals.

3. We would be interested in what Marshall Block considers a bizarre dietary

program, especially in view of the probable fact that his training in nutrition is not comparable to that of the average holistic physician.

4. The cleansing enema has been known as part of the healing process for generations, and was part of the regimen of therapy of every physician only several decades ago. It was unfortunately lost sight of when a scientific goal replaced the understanding of a human being in the early 20s.

In response to the statement that holistic physicians are treating primarily emotional problems, we would like to state that holistic medicine is not psychosomatic medicine. Our premise is that an imbalance in one aspect of the individual brings about an imbalance in the entire patient. This means mental, emotional, spiritual, and physical stress can cause disease and are totally interrelated.

One of the basic tenets of holism is first to do no harm, e.g. "Primum Non Nocere." What, then, is Dr. Block's evidence for stating, "Patients are on occasion being made physically ill by some of these therapies, i.e., toxic doses of vitamins." Does this problem qualitatively or quantitatively approach problems like Digitalis toxicity or tardive dyskinesia from phenothiazines?

Since we consider ourselves dedicated physicians, we feel obliged to continue practicing medicine using all available non-invasive diagnostic and non-toxic therapeutic modalities in which we have been trained.

Gladys T. McGarey, M.D.  
 William A. McGarey, M.D.  
 John C. Reed, M.D.  
 Cheryl A. Harter, M.D.  
 Harvey Bigelsen, M.D.  
 Stanley R. Olszyn, M.D.  
 Abram Ber, M.D.

### Editor's Response:

As mentioned in my editorial, the concept of holistic medicine is commendable. However, the methods used by some practitioners within the holistic community do not have a justified scientific place in modern medical practice. Contrary to what Dr. McGarey, et al feel, it is fortunate that the scientific approach has replaced the dubious methods of the early 1920's, i.e., cleansing enemas. There is no question that holistic physicians are dedicated. The key point is whether they, as licensed medical practitioners, are dedicated to the correct methods of diagnosis and treatment.

MBB



**Arizona  
 Medicine**

### Editor

**Marshall B. Block, M.D.**

### Associate Editors

**Kenneth Desser, M.D.  
 C. Herbert Fredell, M.D.  
 Warren Gorman, M.D.**

### Editorial Board

**Thomas E. Bittker, M.D.  
 John R. Green, M.D.  
 John W. Kennedy, M.D.  
 William B. McGrath, M.D.  
 Arthur R. Nelson, M.D.  
 Charles Nugent, M.D.  
 Eric Prosnitz, M.D.  
 Sydney Salmon, M.D.  
 Lawrence Stern, M.D.**

### Managing Editor

**Bruce E. Robinson**

### Editorial Assistant

**Joan M. Alexander**



# Mastoiditis in Prehistoric Arizona Indians

Leon L. Titcher, M.D.  
 Richard D. Wachter, M.D.  
 Stanley W. Coulthard, M.D.  
 Lucy L. Harries, R.T.

Editor:  
 John W. Kennedy, M.D.

## Abstract

Since otitis media and mastoiditis are the leading causes of morbidity in present-day Arizona Indians, when an opportunity presented itself to determine the incidence of these conditions in a group of prehistoric Arizona Indians, it was thought to be a worthwhile study.

Our findings in a group of 1296 temporal bones from 742 individuals are presented. Data which are available from a selected Apache population of the same area which we studied is compared.

Key Words: otitis media, mastoiditis, Arizona Indians.

## Introduction

Otitis media and mastoiditis have existed since prehistoric times. Evidence of these conditions has been found in Egyptian mummies<sup>1</sup> and in a prehistoric Iranian population.<sup>2</sup> At the present time, otitis media ranks as the greatest cause for morbidity in the Indian population of this section of the country and has a rate several times that of the general population of the United States.<sup>3</sup> In a study of 3318 Navajo children, Johnson<sup>4</sup> found 61% had chronic otitis media, while Jaffe<sup>5</sup> found a 13.6% incidence in 2000 children of the same tribe. Zonis,<sup>6</sup> in

studies at Bylas on the San Carlos Reservation, found a 10.7% incidence in 700 individuals of all age groups, an 8.3% incidence of the disease in all age groups of 505 individuals of Canyon Day School on the White Mountain Apache Indian Reservation,<sup>7</sup> and 436 cases who sought care for chronic otitis media at the Public Health Service Indian Hospital in Phoenix from a population of approximately 40,000.<sup>8</sup> It was estimated that three to four thousand of them suffered from the condition.

An opportunity arose to examine the temporal bones of a prehistoric Indian population of southeastern Arizona to determine the incidence of mastoiditis in them. It was felt that this possibly could yield some information which could be of assistance in the treatment and prevention of this condition in the present-day population.

## Materials and Methods

The specimens came from archeological sites in present-day Navajo, Gila and Apache counties. All of these sites have a similar temporal provenience and generally similar geographical environment. The pueblos were situated on prairie plateaus at approximately 1850 meters elevation and were surrounded by higher elevations. These were racially similar people and inhabited these sites from about AD 950 to about AD 1450 and then disappeared completely. The present-day inhabitants, from all anthropological indications, are not related to these prehistoric Puebloans.

The temporal bones were studied by x-rays in the Law, Towne and submento-vertical positions with the technical factors being:

| Position             | KV | MV | Time (sec.) | Tube Distance (in.) |
|----------------------|----|----|-------------|---------------------|
| Law                  | 75 | 20 | 2           | 36                  |
| Stenvers             | 75 | 20 | 2           | 36                  |
| Submento-vertical    | 90 | 20 | 4           | 36                  |
| Spot cone            |    |    |             |                     |
| Non-screen cassettes |    |    |             |                     |

The mastoids were classified following the criteria of Tremble:<sup>8</sup> a pneumatized mastoid was one in which the bone was hollowed out by large cells which intercommunicated with each other; a diploic type was formed of dense, compact bone and consisted of small cells filled with bone marrow and fat; the mixed type were composed of pneumatic and diploic cells; and the sclerotic type consisted of hard, ivory-like bone throughout, having few cells present except for the antrum.

## Results

Twelve hundred ninety-six temporal bones from 742 individuals were studied (Table 1). Age could not be determined in 24 skulls (3.2%) or in 39 temporal bones

From: University of Arizona Health Sciences Center, Department of Surgery, Section of Otorhinolaryngology and the Department of Radiology. Reprint requests to Dr. Titcher, Section of Otorhinolaryngology, Department of Surgery, University of Arizona Health Sciences Center, Tucson, Arizona 85724.

**Table 1**  
**Distribution of Skulls and Temporal Bones By Age and Sex**

| Age               | Skulls |        |         |       | Temporal Bones |        |         |       |
|-------------------|--------|--------|---------|-------|----------------|--------|---------|-------|
|                   | Male   | Female | Unknown | Total | Male           | Female | Unknown | Total |
| Birth to 10 years | 2      | 0      | 230     | 232   | 3              | 2      | 378     | 383   |
| 11 to 20 years    | 15     | 29     | 20      | 64    | 26             | 50     | 36      | 112   |
| 21 to 30 years    | 56     | 81     | 0       | 137   | 101            | 146    | 0       | 247   |
| 31 to 40 years    | 63     | 72     | 1       | 136   | 113            | 132    | 1       | 246   |
| 41 plus years     | 62     | 87     | 0       | 149   | 110            | 159    | 0       | 269   |
| Unknown           | 8      | 14     | 2       | 24    | 12             | 23     | 4       | 39    |
| Total             | 206    | 283    | 253     | 742   | 365            | 512    | 419     | 1296  |

(3%), while the sex of the individual could not be ascertained in 253 skulls (34.1%) or in 419 temporal bones (32.3%). One thousand seventy-two (82.7%) of the temporal bones showed pneumatized mastoids. This we feel represents an extremely low incidence of infection in these Indians. In the individuals in whom only one temporal bone was present, 141 (75.0%) were pneumatic and equally divided between right and left sides, and where both temporal bones of the same individuals were available, 449 pairs (81.0%) of the 554 pairs were pneumatic (Table 2).

#### Discussion

All types of mastoids other than those classified as pneumatic were considered as being abnormal in spite of Tremble's<sup>8</sup> statement that Cheatle and Mouret had disproved the theory that increased density of the mastoid on x-ray following inflammatory conditions. Cheatle<sup>9</sup> said that the anatomical conditions seen in the infantile type of mastoid were factors in producing chronic suppuration and not the result. Tumarkin<sup>10</sup> concluded that the hypocellular bone in an individual never was anything but hypocellular, and that Cheatle's conclusion that this type was a natural variant and had a predilection for disease, did not consider that hypocellularity might be the result of pathological inhibition of pneumatization. Tumarkin said that this apparently did not occur to Cheatle — or if it did — he may have rejected it. Tumarkin also stated that the normal mastoid always is well pneumatized, the hypocellular types being caused primarily by inhibition of pneumatization due to pathological forces which play

their part during infancy and childhood. If a hypocellular mastoid was thus produced, it should be the site of persistent chronic inflammation and would gradually sclerose and ultimately become acellular. Mouret<sup>11</sup> stated that the density of the mastoid bone is a developmental condition and not a result of chronic suppuration, but is one of the factors which predispose to acute otitis and its progression to a chronic state. He<sup>12</sup> states that there are three types of mastoids: diploic, pneumatic and sclerotic. The latter is completely eburnated bone and characterized by hard bone with few cells, being provoked by chronic suppuration of the pneumatic cavities. He<sup>13</sup> also believed that the pneumatization of the mastoid plays a large part in the development of mastoid infections from middle ear infections. Dahlberg and Diamant<sup>14</sup> found that hereditary factors plays a dominant part in determining the size of the cellular system which determines whether chronic otitis will be shown in many cases to be due to heredity. Proctor<sup>15</sup> called attention to the fact that chronic infections occur predominantly in non-pneumatized clefts which may be the result of either inhibition of growth by upper respiratory infections during childhood or direct inflammations which produce an inflammatory sclerosis in the mastoid.

There have been two studies done elsewhere in this country on the incidence of mastoiditis in prehistoric Indians, both in South Dakota. Gregg and his associates<sup>16</sup> found 52.8% of 417 temporal bones which they studied had a significant amount of middle ear disease during the period of growth of the mastoids,

**Table 2**  
**Pneumatization of the Temporal Bone**

| Mastoid Type | Single Bones |      |       | Bilateral Bones (Pairs) |         |       |           | Total |
|--------------|--------------|------|-------|-------------------------|---------|-------|-----------|-------|
|              | Right        | Left | Total | Pneumatic               | Diploic | Mixed | Sclerotic |       |
| Pneumatic    | 72           | 69   | 141   | 449                     | 8       | 5     | 3         | 465   |
| Diploic      | 17           | 15   | 32    | 7                       | 50      | 0     | 0         | 57    |
| Mixed        | 6            | 6    | 12    | 7                       | 1       | 15    | 0         | 23    |
| Sclerotic    | 2            | 1    | 3     | 3                       | 0       | 1     | 5         | 9     |
| Total        | 97           | 91   | 188   | 446                     | 59      | 21    | 8         | 554   |



while Steele<sup>17</sup> found 464 (49.7%) pneumatic mastoids in 933 temporal bones from a similar area. Both of these reports show a much higher incidence of infection than ours.

Data which are available from a selected Apache population of the same general area which we studied show an incidence of from 21% in children less than 10 years of age to two percent in those over 41 years of age, with an average of nine percent in an average population of 5851.<sup>18</sup>

In an attempt to explain the difference in the occurrence of mastoiditis between prehistoric Indians and the present-day inhabitants of the same area, several factors must be considered. Is this due to different inherited racial characteristics? Climate-wise, it appears that there has not been any change. Is the fact that the prehistoric group lived in pueblos and pit houses as contrasted with the present-day hogans another factor which must be considered? Also, not too much is known about the diet of the prehistoric people and this may play a role. In an attempt to shed some light on this, further studies on these bones is underway.

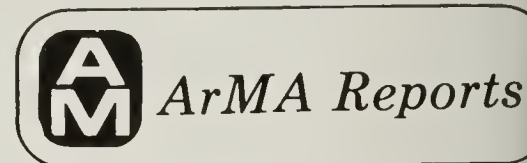
#### Acknowledgement

The authors express their appreciation to Walter H. Birkby, Ph.D., Physical Anthropologist at the Arizona State Museum, for his assistance in this project and allowing the use of the material, and to A. Cole Thies, Jr., M.S.P.H., for the statistical material.

#### References

1. Lynn GE, Benitez JT: Temporal bone preservation in a 26-year-old Egyptian mummy. *Science* 183:200-202, 1974.
2. Rathburn TA, Mallin R: Middle ear disease in a prehistoric Iranian population. *Bull NY Acad Med* 53:901-905, 1977.
3. Shaw JR, Goodwin MH, Jr, Feldman C: Distribution of otitis media among four indian populations in Arizona. *Draft Report* June 4, 1979.
4. Johnson RL: Chronic otitis media in school age Navajo Indians. *Laryngoscope* 77:1990-1995, 1967.
5. Jaffe BF: The incidence of ear disease in the Navajo Indians. *Laryngoscope* 72:2126-2133, 1969.
6. Zonis RD: Chronic otitis media in the Arizona Indian. *Arizona Med* 27:1-6, 1970.
7. Zonis RD: Chronic otitis media in the Southwest American Indian. *Arch Otolaryngol* 88:360-369, 1968.
8. Tremble GE: Pneumatization of the temporal bone. *Arch Otolaryngol* 19:172-182, 1934.
9. Cheatle AH: The infantile types of the temporal bone and their surgical importance. *Lancet* 1:491-493, 1910.
10. Tumarkin A: On the nature and vicissitudes of the accessory air spaces of the middle ear. *J Laryngol* 71:65-99, 1957.
11. Mouret J: Etude sur la structure de la mastoïde et le développement des cellules mastoïdiennes. Influence de la Constitution de la Mastoïde sur l'évolution des otites moyennes. *Bull d'Oto-Rhino-Laryngol. Par.* 15:310-313, 1912.
12. Mouret J: Etude sur la structure de la mastoïde et sur le développement des cellules mastoïdiennes. Influence de la constitution de la mastoïde sur l'évolution des suppurations antro-cellulaires. *Ann d Mal de l'Oreille, du larynx, etc. Par.* 39:115-252, 1913.
13. Mouret J: Systematisation de la mastoïde. Systematisation des mastoïdites. Mastoïdectomie. *Acta Oto-Laryngol.* 12:139-192, 1928.
14. Dahlberg G, Diamant M: Hereditary character of the cellular system in the mastoid process. *Acta Otolaryngol* 33:378-389, 1945.
15. Proctor B: Etiology of Otitis Media. In: *Otitis Media*, 1972, A. Glorig, KS Gerwin (eds), Charles C. Thomas, Springfield, Il.

16. Gregg JB, Steele JP, Holzheuter A: A roentgenographic evaluation of temporal bones from South Dakota Indian burials. *Am J Phys Anthropol* 23:51-61, 1965.
17. Steele JP: Personal communication.
18. Goodwin MJ, Jr: Personal communication.



The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

#### PROFESSIONAL COMMITTEE

Meeting of the Professional Committee of the Arizona Medical Association held June 24, 1981, at 810 West Bethany Home Road, Phoenix, Arizona, convened at 6:48 p.m., Joseph W. Hanss, Jr. M.D., Chairman, presiding.

#### Charge to Sections

Dr. Hanss indicated to the committee that the president of ArMA has indicated a desire to strengthen all committees and to see policy developed at the committee level. Dr. Hanss stressed three areas that he feels particularly need responsive action. They are: Emergency Medicine, Allied Health, and Aging and General Medicine. There is a need to seek solutions to problems that exist in those particular areas.

#### Physician and Nurse Survey

##### Physician/Nurse Survey: Jackie Soter

Jackie Soter, Director of Nursing Resources, Arizona Hospital Association presented to the committee a "Physician Survey and Nurse Survey Questionnaire." She indicated that her association would like to have the endorsement of the Medical Association on this particular questionnaire in hope that this would aid in a more favorable response rate. She also expressed the hope that ArMA might consider sending the cover letter out on ArMA stationary and/or allow the questionnaires to be returned to ArMA.

*It was moved and carried to recommend approval of a Physician and Nurse Survey questionnaire proposed by the Arizona Hospital Association.*

A decision concerning the transmittal letter and return of questionnaire will be determined by the President and Executive Director.

#### Aging and General Medicine

##### Resolution 1-81 - Care After Death: Dr. Hagan

Dr. Hagan briefed the committee on Resolution 1-81, which gives guidelines to nursing homes of a patient expires at



odd hours of the night. It was suggested that problems in nursing homes be looked into to see if physicians can help. Dr. Sarn indicated that the Department of Health Services has appointed a committee to evaluate nursing homes, to seek out some of the frustrations and problems that exist.

#### **Allied Medical Groups**

##### **Allied Health: Dr. Cain**

Dr. Cain briefed the committee on Allied Health. There are two areas that he is especially concerned with; allied health professions whose education and training are approved by medicine, and those limited-license practitioners who are attempting to extend their scope of practice.

#### **Athletic Medicine**

##### **Sports Medicine: Dr. Hanss**

Dr. Hanss briefed the committee on the section of Sports Medicine. This section continues to be active and is a top priority at the present time. The sub-committee is already planning the 1982 symposium. The committee was informed that the publication "Sports Illness Treated" has had its name changed to "Arizona Sports Medicine".

##### **Disaster Medicine and Emergency Care**

##### **Disaster Medicine/Emergency Care: Dr. Hanss**

Dr. Hanss indicated to the committee that there has been little activity by this section, although there are many problems of treatment, transport, etc., that need to be addressed. Dr. Lawson indicated that Disaster Medicine is a very important item and should be looked into in order to develop a plan for disasters. It was decided to combine Disaster Medicine and Emergency Care into one section with Dr. Lawson and Dr. Kriegsfeld as co-chairmen.

*It was moved and carried to combine Disaster Medicine and Emergency Care into one section with Dr. Lawson and Dr. Kriegsfeld as co-chairmen.*

##### **St. Joseph's/AIR EVAC: Dr. Lawson**

Dr. Lawson briefed the committee on a letter received from the Emergency Room staff at St. Joseph's Hospital. Lengthy discussion ensued. It was determined to write a letter to the Emergency Room staff at St. Joseph's Hospital indicating to them that the matter has been reviewed quite extensively and will be followed by the section.

*It was moved and carried to respond to the Emergency Room staff at St. Joseph's Hospital indicating to them the concerns expressed by them are under study, and also expressing the committee's concern over the appropriateness of the manner in which the complaint was lodged.*

#### **Polson Control**

##### **Insect Sting Emergency Treatment Act: Dr. Kunkel**

Dr. Kunkel briefed the committee on the model bill "Insect Sting Emergency Treatment Act." It was the feeling of the committee that this is not a matter for legislation and would tend to create more bureaucracy. If such legislation should be introduced, the committee would recommend active non-support.

*It was moved and carried that legislation concerning insect sting emergency treatment should not be pursued and that should such legislation be introduced, the committee recommends active non-support by ArMA.*

#### **Medical Practice Act**

##### **Appointment of Sub-Committee: Dr. Hanss**

Dr. Hanss informed the committee that a revision of the Medical Practice Act has been prepared by staff at BOMEX, and submitted to this committee to carry out this review. The following individuals will serve on the sub-committee: Drs: Hanss, Reuben, Hagen, Richard L. Dexter and George Scharf. Dr. Dexter and Dr. Scharf will be contacted to see if they will accept appointment. The sub-committee will be requested to complete their review so that any recommendations can be submitted to the Board of Directors for approval at their meeting in October.

*It was moved and carried to appoint the following individuals to serve on a sub-committee to review the revision of the Medical Practice Act: Drs: Hanss, Reuben, Hagan, Richard L. Dexter and George Scharf. The Sub-Committee will be asked to complete review so that any recommendations can be submitted to the Board of Directors for approval at their meeting in October.*

#### **Cervical Caps**

##### **Use of Cervical Caps: Dr. Hanss**

Dr. Hanss briefed the committee on the use of cervical caps. Several letters concerning the use of cervical caps by Chiropractors were reviewed. A great deal of concern was expressed by members of the committee. It was determined to forward correspondence regarding use of cervical caps by Chiropractors to the Board of Medical Examiners for investigation.

*It was moved and carried to forward correspondence regarding use of cervical caps by chiropractors to the Board of Medical Examiners for investigation.*

#### **Other Business**

##### **Future Meeting: Dr. Hanss**

Dr. Hanss stated that a meeting will be held at the end of September so that any recommendations can be submitted to

the October meeting of the Board of Directors.

#### **AD HOC INDIGENT HEALTH CARE COMMITTEE**

The meeting of the Ad Hoc Indigent Health Care Committee of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Saturday, July 11, 1981, convened at 9:33 a.m., MacDonald Wood, M.D., Chairman, presiding.

##### **Report of Meetings With Senator Usdane**

Edward Jacobson, Esq. reported orally, and in writing, on recent meetings held with Senator Usdane and members of his staff, setting forth what the Senator believed were the "cost savings" features of the plan and providing to the committee the first two pages of the Blue Cross/Blue Shield study used as the basis for HB 2484.

Mr. Jacobson also provided for the committee's review and information memoranda relating to conference calls held with staff members of the AMA's Washington, D.C. and Chicago offices on July 6 and 8, respectively; stating that it was, among other things, the opinion of that staff that it is not known whether the plan provided under HB 2482 would receive federal approval but, in any event, it did not appear that approval would come within the next two or three weeks.

##### **General Review and Discussion**

The members reviewed the areas of concern in HB 2484 previously outlined by it, together with comments from Dr. Kurtz and Shirley Rivers of the AMA's Department of State Legislation; and, discussed at great length the procedures to be followed by the committee in making its recommendations to ArMA's Board of Directors regarding the position to be taken by the Arizona Medical Association on the pending legislation.

In order that the committee, in such recommendation, would include as near as possible the thoughts, wishes and desires of the majority of the membership, it was determined that the committee obtain the opinions on HB 2484 from the following: the "primary care" physicians established by the bill, i.e., the Arizona Academy of Family Physicians, the Arizona Chapter, American Academy of Pediatrics, the Arizona Society of Internal Medicine, and the Arizona Section Chapter, American College of OB/GYN, as well as the Arizona Chapter, American College of Emergency Physicians; those groups and institutions which might be potential providers under the bill, i.e.,



the six county hospitals presently functioning in Arizona, the University of Arizona, the Maricopa Foundation for Medical Care, and established and recognized, as well as contemplated, HMOs; with the next meeting of this committee to be held subsequent to receipt and review of the aforementioned opinions.

#### **Other Business Resignation**

Resignation of Dr. Edward R. Curtis as a committee member. *Received.*

#### **Redwood Health Foundations**

Summary of Redwood Health Foundation and its presentation of June 18. *Received.*

### **EXECUTIVE COMMITTEE**

The meeting of the Executive Committee of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Friday, July 17, 1981, a quorum being present, convened at 6:38 p.m., Clyde W. Kurtz, M.D., President and Chairman, presiding.

#### **BOMEX Appointments**

Appointments of Richard L. Dexter, M.D. (2/28/81-86), Michael R. Geyser, M.D. (7/1/81-86) and Scott Alexander as members of the Board of Medical Examiners. *Received.*

#### **Podiatrists - Hospital Staff Privileges**

Mr. Robinson updated the committee on the U.S. Department of Justice, Antitrust Division investigation relating to granting of hospital staff privileges to podiatrists and indicating that in all probability these investigations will not continue as to ArMA or the Arizona Hospital Association but some individual hospitals will continue to be affected.

Along these same lines, the committee discussed the existing position papers of the Association on various subjects of current interest, including podiatry, and

*It was moved and carried that, in order to fully inform the members of the present position of the Arizona Medical Association on topics of current issues, those position papers be published in total in Arizona Medicine. (See Arizona Medicine August 1981, pages 640-641 for position papers on Chiropractic, Naturopathy, Nurse Practitioners, and Podiatry)*

#### **MICA - ArMA Support**

The committee discussed the recent action by the Mutual Insurance Company of Arizona to refund 1% of premium dollars to ArMA and the consideration which might be given to a visible show of support to MICA. It was determined that Mr. Robinson would pursue such possibilities with MICA and

legal counsel and report back to this committee. Additionally, it was determined that the Finance Committee would review and recommend investment of and uses for the funds which have and will be received from MICA.

#### **BOMEX Nomination**

Mr. Robinson reminded the committee that it had previously received a request from Albert Rosenblatt, M.D. to be considered for possible nomination to BOMEX and, in accordance with the committee's action, endorsement by the Mohave County Medical Society had been requested but not yet received.

#### **Industrial Commission of Arizona**

The committee received and reviewed a June 25, 1981 letter from Frank W. Ellig, Administrative Law Judge for the Industrial Commission of Arizona, to Melvin D. Roberts, M.D., together with responses to that letter made by C. H. Willingham, M.D. and Jay A. Katz, M.D. as President of the Tucson Orthopedic Association. Following a lengthy discussion,

*It was moved and carried that copies of the correspondence received from Frank W. Ellig, Administrative Law Judge for the ICA, C. H. Willingham, M.D. and Jay A. Katz, M.D., dated June 25, July 1 and July 2, 1981, respectively, be immediately referred to the Medical Economics Committee, with the request that such committee seek clarification from Harry G. Kelley, Director of the Industrial Commission of Arizona, of the contents of Mr. Ellig's letter relating to appearances at scheduled ICA hearings.*

#### **Articles of Incorporation and Bylaws Committee**

The committee was advised that Dr. Henderson, as Chairman of the Articles of Incorporation & Bylaws Committee, was beginning an in-depth review of the current bylaws structure, following which he will present for his committee's review and recommendation to the Board possible changes in those bylaws. Members were encouraged to contact Dr. Henderson immediately, should they have any input along these lines which might be of assistance to him.

#### **1982 Annual Meeting**

Due to the format change for the 1982 Annual Meeting the Executive Committee will meet on Friday, May 28, 1982 at 6:00 a.m. *Received.*

#### **Physicians Education Network, Inc.**

The committee received a request dated July 1, 1981 from the Physicians Education Network, Inc., requesting the Association's support, relating to the National Education Association and the subject of dyslexia.

*It was moved and carried to refer the*

*July 1, 1981 request from the Physicians Education Network, Inc. relating to the National Education Association and the subject of dyslexia to ArMA'S Professional Committee for its review and recommendations.*

#### **Ad Hoc Indigent Health Care Committee**

Dr. Kurtz reported to the members on the activities of the Ad Hoc Indigent Health Care Committee relative to H.B. 2484, its review of the many pertinent documents as well as discussions with members of the AMA legislative department and Senator Usdane and staff, and the intent of the committee to develop a position on the pending legislation during its next scheduled meeting on August 29th.

#### **Other Business**

#### **Management Consultant**

Dr. Kurtz reported on the employment of a management consultant to review activities of the Association, advising that two firms were in process of preparing written proposals for the committee's consideration.

#### **8th Annual Arizona Conference on Rural Health**

Dr. Oakley reported on the final planning for the 8th Annual Arizona Conference on Rural Health to be conducted in Prescott on August 21 and 22, presenting to the committee the brochure, which has just recently been mailed, outlining the program.

#### **Governmental Services Committee**

Dr. Kurtz advised the members that he had received acceptance by Dr. Belton P. Meyer, subject to confirmation by the Board of Directors, to serve as chairman of the Governmental Services Committee.

### **MATERNAL AND CHILD HEALTH CARE COMMITTEE**

The meeting of the Maternal and Child Health Care Committee of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Saturday, July 18, 1981, convened at 10:15 a.m., William C. Scott, M.D., Chairman, presiding.

#### **Lay Midwifery**

Dr. Scott addressed the committee relative to the Board of Directors' action of 5/20/81, wherein it directed this committee to develop a position paper on the subject of lay midwifery. Statements of The American College of Obstetricians and Gynecologists relating to "Home Deliveries" and "The Responsibilities of the Health Team in Maternity Care," as well as a draft of a Joint Supplementary Statement of The American College of Nurse-Midwives, the American College of Obstetricians



and Gynecologists and the Nurses Association of the American College of Obstetricians and Gynecologists were distributed for review. After a lengthy discussion, Dr. Lewis Shenker was requested to draft a position paper which would be circulated to the membership for review and comment prior to final recommendation to the Board of Directors for adoption, it being the consensus of the membership that such draft should incorporate a reaffirmation that hospital delivery is safer than home delivery and a reinforcement of the standards of the medical profession.

#### **Subcommittee on Perinatal Health**

Minutes of the meetings held on 3/23/81. *Received.*

In addition to a review of the foregoing minutes, Dr. William Carlile, a member of the Subcommittee on Perinatal Health, related to the committee the progress which had been made in compiling data regarding neonatal mortality within the state and the plans to now attempt the same type of evaluation relating to perinatal mortality.

#### **Satisfaction with Maternity Care in Arizona The Results of a Statewide Survey**

The committee reviewed and discussed the paper by Deborah Sullivan, Ph.D. and Ruth Beeman, R.N., C.N.M., M.P.H. entitled "Satisfaction with Maternity Care in Arizona — The Results of a Statewide Study," which has been submitted to the editor of *Arizona Medicine* for publication.

#### **Changes in Legislation Re: Maternal and Child Health Care**

Drs. Carlile and Baum updated the committee on state programs which are presently ongoing for which federal funding is received and allocated for use via the state legislature. Dr. William Clement, the Assistant Director for the Division of Family Health Services of the Arizona Department of Health Services, spoke on the legislation which the Department proposes to draft and present during the upcoming legislative session which, among other things, would set forth specific authorization for the programs presently provided through the Department, i.e., newborn/perinatal programs, local MCH programs, school health programs, dental health programs, nutrition programs, and a statewide program for planning and evaluation. The committee expressed its desire to be of whatever assistance possible in the drafting and support of the legislation, the time frame for which seems to be a draft by September 15th, a final bill by

November 15, and submission to the legislation by December 1. Along these lines, the committee took the following action:

*It was moved and carried to request that the Arizona Perinatal Trust provide members to assist the Arizona Department of Health Services in the drafting of the proposed MCH legislation*

#### **Other Business**

##### **The Newborn Followup**

June 1981 issue of *The Newborn Followup* containing an article on "Arizona's Newborn Intensive Care Program (NICP)" *Received.*

##### **Subcommittee on Maternal Mortality**

Dr. William Susong, Chairman of the Subcommittee on Maternal Mortality, reported on current activities of that committee regarding identification of maternal deaths within the state, advising that the American College of OB/GYN would soon be doing a review of the data collected by the individual states in order to establish national statistics

#### **EXECUTIVE COMMITTEE**

The meeting of the Executive Committee of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Friday, August 7, 1981, convened at 7:01 p.m., Clyde W. Kurtz, M.D., President and Chairman, presiding

##### **Management Consultant**

Since only three members were in attendance, it was determined by Dr. Kurtz that the matter of discussing the employment of a management consultant by the Association be carried over as an agenda item for the next meeting of the committee scheduled for Friday, September 11, 1981.

##### **Review of Board of Directors' Agenda for 8/8/81**

The Board of Directors' agenda for its August 8 meeting was reviewed and discussed, with additions and changes being made.

#### **Other Business**

##### **BOMEX Recommendations**

The committee was informed that the Mohave County Medical Society had given its endorsement and support to the recommendation of Albert Rosenblatt, M.D. to the Board of Medical Examiners. It was determined that, since no vacancies currently exist on that Board, any recommendation of Dr. Rosenblatt by the Association would be held until it became apparent that a new appointment to that Board would be made.

##### **1982 Annual Meeting**

Mr. Robinson informed the committee that, due to the change in format for the

1982 annual meeting and the requirement for less space and fewer days for the holding thereof, The Pointe Resort had determined that it could not be the host facility as previously agreed. Although this was a matter that would be brought before the Board of Directors, the members agreed that Mr. Robinson should proceed to look into the availability of other facilities; the committee also discussed the possibilities of hosting a social function on the Thursday evening preceding the Friday/Saturday meeting schedule

##### **Legislative Lobbyist**

Mr. Robinson advised the members that, as of September 1, 1981, Allan J. Stanton, Esq., had been employed to act as ArMA's legislative lobbyist for an initial period of one year

##### **Indigent Health**

Mr. Jacobson reported to the committee on the most recent of his conversations with Senator Usdane relative to House Bill 2484 and the activities of the Ad Hoc Indigent Health Care Committee relating thereto, advising them that it appears that the Senator is interested only in having the Association assist in the writing of the rules and regulations for the implementation of the bill if it, in fact, is passed during the upcoming legislative session

##### **Guest Attendees**

The committee discussed the value of including Dr. James E. Sarn, Director of the Arizona Department of Health Services, among the guests presently attending the Executive Committee meetings and it was determined that such invitation should be extended immediately so that, if accepted, Dr. Sarn would be able to be present at the September 11, 1981 meeting

#### **BOARD OF DIRECTORS**

The meeting of the Board of Directors of the Arizona Medical Association, Inc. held at 810 West Bethany Home Road, Phoenix, Arizona, on Saturday, August 8, 1981, a quorum being present, convened at 10:16 a.m. Clyde W. Kurtz, M.D., President and Chairman, presiding.

##### **ArMA Auxiliary Activities Report**

Mrs. Janet Hoffman, President of the ArMA Auxiliary, reported to the Board on the most recent activities in which the Auxiliary is involved, including assisting the hospital auxiliaries in disseminating information on the use of safety car seats and the AMA pilot study on



physicians' deaths, as well as the continuation of provision of the "Physician's Survivor Information Handbook," which has been well received.

Mrs. Hoffmann additionally discussed the upcoming fall conference to be held at Carefree, and the attendance of six delegates at the recent AMA Auxiliary Convention in Chicago, during which Mrs. Ella Kimball was named Historian and Mrs. Eloise Clymer appointed to serve on the Long Range Planning Committee.

The Board was advised that Charles Kerr, M.D. had requested the Auxiliary's representation on the Governor's Council on Physical Fitness and that, with the approval of the ArMA Board of Directors, the Auxiliary intended to recommend Mrs. Connie Wry for this position.

#### **ArMPAC**

##### **Activities**

Daniel T. Meredith, M.D., the newly-appointed Chairman of the ArMPAC Board of Directors reported to the Board that it was the intent of ArMPAC to formulate new ideas for increasing its membership — presently only approximately 8% of ArMA members are also members of ArMPAC — and that he would be meeting on August 18 with a representative from AMPAC in an effort to secure information and assistance in this endeavor.

##### **Confirmation of Appointment**

*It was moved and carried to confirm the appointment of Robert C. Briggs, M.D. as a member of the ArMPAC Board of Directors for the term 1981-82.*

##### **American Medical**

##### **Association Delegation**

##### **Resignation of W. Scott Chisholm, M.D.**

The Board was advised of the recent election of W. Scott Chisholm, M.D. to serve on the Judicial Council of the American Medical Association and that, by reason thereof, Dr. Chisholm had submitted his resignation as an ArMA Delegate to the AMA.

*It was moved and carried to accept the resignation of W. Scott Chisholm, M.D. as an ArMA Delegate to the AMA, with a letter of thanks to Dr. Chisholm for the time and energies devoted during his years as a member of the AMA Delegation.*

##### **Appointment of Delegate and Alternate Delegate**

*It was moved and carried to appoint Bruce N. Curtis, M.D. as Delegate to the AMA to fill the vacancy occurring as a result of the resignation by W. Scott Chisholm, M.D. from such office and to appoint Franklin D. Loffer, M.D. as Alternate Delegate to the AMA to complete the balance of Dr. Curtis' existing term as an alternate, with both*

*such appointments terminating on December 31, 1981.*

##### **ArMA's Resolution in the AMA House of Delegates**

Report on status of Resolution No. 16, "Education of Limited License Practitioners," submitted by the AMA Delegation to the AMA House of Delegates. *Received.*

##### **Delegation Report**

Report of the AMA Delegation on the June 7-11, 1981 Annual Meeting. *Received.*

#### **Board of Directors**

##### **Medical Cost Containment Committee**

Governor Babbitt's July 16, 1981 letter regarding appointment of Clyde W. Kurtz, M.D. as a member of the new "Medical Cost Containment Committee." *Received.*

##### **Board of Medical Examiners**

Governor Babbitt's July 1, 1981 letters regarding the following appointments to the Board of Medical Examiners: Scott Alexander - Term Ending 2/26/86; Richard L. Dexter, M.D. - Term Ending 2/26/86; and Michael R. Geyser, M.D. - Term Ending 7/1/86. *Received.*

##### **Internal Revenue Service**

IRS letter of 6/8/81 advising of termination of 1975 Audit. *Received.*

##### **Board Meeting Date Changes**

Notice of rescheduling of Board of Directors' meetings to Friday, May 28, 1982 at 8:00 a.m. and Saturday, May 29, 1982 at 12:00 Noon. *Received.*

##### **FEC Investigation**

Letter from Snell & Wilmer dated 6/1/81 advising that the Federal Election Commission was closing its file relating to the investigation of ArMPAC. *Received.*

##### **Boddicker v. Arizona State Dental Association**

Letter of 6/22/81 from Snell & Wilmer re: Boddicker v. Arizona State Dental Association, indicating judgment has been granted in favor of the defendant and the case is now on appeal. *Received.*

##### **1982 House of Delegates' Meeting**

The Board was informed that, due to the change in format for the Association's annual meeting in 1982, The Pointe Resort had cancelled the use of its facility for that meeting. The members discussed, at length, possible alternative locations as well as a change of date, since the meeting as presently scheduled - May 28 and 29, 1982 - falls on the Memorial Day weekend.

*It was moved and carried that the selection of a location and the dates for the holding of the 1982 House of Delegates' meeting be left to the discretion of the President and the Executive Director, with the only provision being that the meeting, to be held on a Friday and Saturday, would*

*not be held on a holiday weekend.*

*It was moved and carried that, in conjunction with the holding of the 1982 House of Delegates' meeting, some type of social function be planned for the Thursday evening immediately preceding the House of Delegates sessions.*

#### **Bylaws Resolutions**

The Board briefly reviewed the bylaw resolutions adopted by the House of Delegates in meeting on May 21, 1981 and, with respect to Resolution No. A-4-81 and Resolution No. A-5-81, took the following action:

*It was moved and carried to refer Resolution No. A-4-81, "Repeal of Mandatory Reporting of Continuing Medical Education," to the Medical Education Committee for further study and appropriate action.*

*It was moved and carried to refer Resolution No. A-5-81, "Student Membership - Medical Student Section," to the Pima County Medical Society, requesting that such society review the resolution and make its recommendation to the ArMA Board of Directors relative to Medical Student memberships.*

#### **General Resolutions**

The Board reviewed the general resolutions adopted by the House of Delegates in meeting on May 21, 1981.

#### **BOMEX Legislation**

Joseph W. Hanss, Jr., M.D., Chairman of the Professional Committee, reported on the activities of the ArMA subcommittee appointed to review the proposed revisions to the Medical Practice Act, which revisions were to be submitted by BOMEX to the legislature later this year. Dr. Hanss advised that while the subcommittee was most concerned with the portions dealing with those to be licensed and disciplinary procedure for those physicians, the entire Act had been reviewed and discussed in depth with representatives from BOMEX, that the subcommittee's suggestions would be taken into consideration by BOMEX in preparing the final draft of its revisions and that such draft would be provided to the subcommittee for review prior to submission to the legislature.

#### **Executive Committee**

##### **Ratification of Minutes**

*It was moved and carried to accept and ratify the minutes of the Executive Committee meetings held on May 20 and July 17, 1981.*

##### **Membership Classification Changes Approved**

##### **Maricopa County Medical Society**

1. Otto L. Bendheim, M.D. - Active to Active Over 70 - Account Age - Dues Exempt - Effective 1/1/82.

2. Jeffery L. Schwimmer, M.D. - Active



Associate - Account Out of Country - Dues Exempt - Effective 1/1/81.

#### **Yavapai County Medical Society**

1. Raymond F. Bock, M.D. - Active to Associate - Account Illness - Dues Exempt - Effective 8/8/81.

2. Donald J. Garland, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 8/8/81.

#### **Yavapai County Medical Society**

1. Owen L. Crammer, M.D. - Active to Associate - Account Retirement - Dues Exempt - Effective 1/1/81.

#### **Benevolent and Loan Committee**

#### **1981 Scholarships**

July 31, 1981 Press Release re: 1981 Scholarship Awards. *Received.*

#### **The Robert Carpenter Scholarship Award**

Letter of 7/28/81 from Blue Cross/Blue Shield advising Jayne M. Melby that she had been chosen recipient of the Robert Carpenter Scholarship Award. *Received.*

#### **Thank You Letters**

Thank you letters from Ana-Luisa Rosales and Mary Connell Hedberg for scholarships received. *Received.*

#### **Finance Committee**

Financial Statement for period ending 3/30/81. *Received.*

#### **Governmental Services Committee**

##### **Confirmation of Appointments**

*It was moved and carried to confirm the appointments H. Belton P. Meyer, M.D., Lawrence J. Shapiro, M.D., Lattimer H. Ford, M.D., Suzanne E. Dandoy, M.D. and Robert F. Crawford, M.D., as members of the Governmental Services committee for the terms 1981-84, with H. Belton P. Meyer, M.D. to serve as chairman of such committee for the term 1981-82.*

##### **Notice of Termination**

Notice of Termination of certain PSRO's, including one in Area 1 - Northern Arizona Medical Evaluation Systems in Phoenix. *Received.*

#### **Health Manpower Committee**

##### **Letter of Thanks**

Letter of thanks from the Yavapai County Medical Society for ArMA's support of the 8th Annual Arizona Conference on Rural Health to be held in Prescott on August 21 and 22, 1981. *Received.*

Dr. Oakley, as one of the program participants, briefly discussed the general format for the conference and expressed the hope that all Board members would try to attend.

#### **Indigent Health Care Committee, Ad Hoc**

##### **Status of Deliberations**

In his update report on the activities of the Ad Hoc Indigent Health Care

Committee, Dr. Kurtz informed the Board of Directors that the committee had compiled a list of nine main concerns with House Bill 2484 and had solicited input from various medical groups throughout the state, which were in process of being reviewed. Dr. Kurtz advised that a meeting of the committee is scheduled for August 29, 1981, during which an ArMA position on indigent health care would be developed for recommendation to the Board.

##### **Confirmation of Appointment**

*It was moved and carried to confirm the appointment of James M. Hurley, M.D. as a member of the Ad Hoc Indigent Health Care Committee for the term 1981-82.*

#### **Physician's Health Committee**

##### **Confirmation of Appointments**

*It was moved and carried to confirm the appointments of James J. Kennedy, M.D. and David Sherman, M.D. as members of the Physician's Health Committee for the terms 1981-84.*

#### **Scientific Assembly Committee**

##### **Confirmation of Appointment**

*It was moved and carried to approve the appointment of Dennis W. Berry, M.D. as a member of the Scientific Assembly Committee for the term 1981-84.*

#### **1982 Proposal**

The Board reviewed the recommendation of the Scientific Assembly Committee relating to a scientific program to be held during 1982 in lieu of the previous format of a "annual meeting," and took the following action:

*It was moved and carried to accept the recommendation of the Scientific Assembly Committee that the 1982 Scientific Program of the Arizona Medical Association consist of four consecutive monthly one-half day "Current Perspectives" meetings, beginning in December 1981 and preferably being held on Wednesday or Thursday afternoons, with a fifth and like meeting to be held in conjunction with the May 1982 meeting of the House of Delegates and that each meeting would be held at ArMA Headquarters, Co-sponsored by ArMA and an outside organization, with the outside organization providing a speaker and promotion for the meeting, which would be devoted to one of the four major disciplines (Medicine, Surgery, Pediatrics, and Ob/Gyn), with no registration fee being required and coffee and soft drinks being provided.*

#### **Other Business**

##### **Maternal and Child Health Care Committee - Confirmation of Appointments**

*It was moved and carried to confirm the appointments of William Carlile, M.D.*

*and Michael S. Clement, M.D. as members of the Maternal and Child Health Care Committee for the terms 1981-84.*

##### **Medical Education Committee - Confirmation of Appointments**

*It was moved and carried to confirm the appointments of George H. Mertz, M.D. and Noel A. Yannessa, M.D. as members of the Medical Education Committee for the terms 1981-84.*

##### **Professional Committee - Recommendations**

The Board received and considered recommendations made by the Professional Committee during meeting on June 24, 1981, and took the following actions relating thereto:

*It was moved and carried that the Model Bill known as the "Insect Sting Emergency Treatment Act" together with an explanatory letter from Dr. Hanss as to his committee's opinions on that legislation, be referred to the Legislative Committee for non-support should it actually be introduced for consideration by the legislature.*

*It was moved and carried that the Arizona Medical Association endorse a physician and nurse survey questionnaire being proposed by the Arizona Hospital Association and that any assistance in the dissemination of return of such questionnaire by the association be left to the discretion of ArMA's President and Executive Director.*



### *Future Medical Meetings*

The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson



Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program,  
(THMEP) Tucson  
University of Arizona College of Medicine,  
Tucson  
Veterans Administration Medical  
Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

## SEPTEMBER

### Dean's Clinical Rounds "Sleep"

September 18, 1981. U of A Health Sciences Center, Tucson, AZ. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### 1st Annual Southwestern Poison Symposium

September 18-19, 1981. San Diego Hilton Hotel, San Diego. Sponsors: U of A College of Medicine, Arizona Poison Control System, Regional Poison Control Center at the U of California, San Diego. Approved for Category 1 credit.

### Mammary Reconstruction

September 22, Boswell Memorial Hospital, Sun City. Sponsor and Contact: Walter O. Boswell Memorial Hospital, Office of CME, 10401 Tunderbird Blvd., Sun City, AZ 85372.

### Second Annual Conference on Perinatal Care

September 25, 26. Little America, Flagstaff, Az. Sponsor: Arizona Medical Assoc. and Arizona Perinatal Trust. Contact: Arizona Perinatal Educational System, Inc., 810 West Bethany Home Road, Phoenix, AZ 85013. Approved for 15 hours of category 1 credit.

### The Medical Consequences of Nuclear Weapons and Nuclear War

September 25-26, 1981. Albuquerque Convention Center, Albuquerque, New Mexico. Sponsor: U of New Mexico School of Medicine, Dept. of Medicine and Physicians for Social Responsibility. Contact: New Mexico Physicians for Social Responsibility, P.O. Box 4096, Albuquerque, New Mexico 87106. Approved for 9 hours of Category 1 credit.

## OCTOBER

### In Vitro Diagnosis of Allergic Disease and Update Management of Bronchial Asthma

October 1, 1981, 12:30 p.m., Scottsdale Memorial Hospital. Contact: Thomas F. Hartley, M.D., 3800 N. Central Ave., Ste 404, Phoenix, Arizona 85012 for additional information.

### The Current Treatment of Bronchial Asthma with Emphasis on New Drugs

October 2, 1981, 12 Noon, Good Samaritan Hospital. Contact: Thomas F. Hartley, M.D.,

3800 N. Central Ave., Ste 404, Phoenix, Arizona 85012 for additional information.

### Radiation Safety

October 5-8, 1981, U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Herschell Horton, R.N., Arizona Center for Occupational Safety and Health, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### Responsible Child, Responsible Family, Responsible School

October 9, 1981, Arizona Biltmore Resort, Phoenix. Sponsor: St. Luke's Hospital and Medical Center. Contact: Christine Campbell, Medical Meeting Planner, St. Luke's Hospital & Medical Center, 525 North 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### Clinical Seminar Series "Cardiovascular"

October 10, 1981, U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### Update on Neurological Trauma

October 10, 1981, Barrow Neurological Institute, Phoenix. Sponsor: St. Joseph's Hospital and Medical Center and Barrow Neurological Institute. Contact: Georgia Frederic, Barrow Neurological Institute, 350 West Thomas Road, Phoenix, Arizona 85013. Approved for 6 hours of Category 1 credit.

### 8th Annual Orthopedic Lectureship - Total Joint Update

October 23 and 24, 1981. Veterans Administration Hospital, Phoenix. Sponsor: Maricopa County General Hospital. Contact: H. J. Louis, M.D., 4910 N. 44th Street, Phoenix, Arizona. Approved for Category 1 credit.

### Fluid, Electrolyte, & Acid-Base Balance

October 24, 1981. The Pointe Resort, Phoenix. Sponsor: Memorial Hospital. Contact: Medical Staff Secretary, Memorial Hospital, 1201 South Seventh Ave., Phoenix, AZ 85036. Approved for 6 hours of Category 1 credit.

### Access: Conference on Disabled Workers

October 27-28, 1981. Marriott Hotel, Tucson. Sponsor: U of A College of Medicine. Contact: Herschella L. Horton, R.N., Arizona Center for Occupational Safety and Health, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### Cardiopulmonary Intensive Care

October 31, 1981. Arizona Biltmore, Phoenix. Sponsor: U of A College of Medicine, Doctors Hospital, American Thoracic Society, and Med Sect of Az Lung Association. Contact: Shorty Welnick, Medical Staff Services, Doctors Hospital, 1947 E. Thomas Road, Phoenix, AZ 85016. Approved for Category 1 credit.

### Management Problems in Geriatric Medicine

October 30-31, 1981, Lakes Club in Sun City, Arizona. Sponsor: Walter O. Boswell Memorial Hospital and Western Division American Geriatrics Society. Contact: Western Division of the American Geriatrics Society, 12630 N. 103rd Avenue, Ste 14B, Sun

City, AZ 85351. Approved for Category 1 credit.

## NOVEMBER

### First Annual Southwestern Poison Symposium

November 6-7, 1981. Scottsdale Hilton Hotel, Scottsdale. Sponsor: U of A College of Medicine. Contact: Attn: Faith Carlisi-Smith, Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for 10 hours of Category 1 credit.

### American College of Physicians/Arizona Society of Internal Medicine Regional Meeting

November 13-14, 1981. Doubletree Inn, Tucson. Sponsor: American College of Physicians, U of A College of Medicine, Arizona Society of Internal Medicine. Contact: Paul J. Rutala, M.D., F.A.C.P., U of A Health Sciences Center, Dept. of Internal Medicine, Tucson, AZ 85724.

### Seeing Our Way Clear

November 14, 1981. Arizona Biltmore, Phoenix. Sponsor: St. Luke's Hospital and Medical Center. Contact: Christine Campbell, St. Luke's Hospital and Medical Center, 525 N. 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### Clinical Seminar Series "Neurology"

November 14, 1981. Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### Dean's Clinical Rounds

November 16, 1981. U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### 29th Annual Convention of the Medical Society of the United States and Mexico

November 18-21, 1981. Tucson, Arizona. Sponsor: Medical Society of the United States and Mexico. Contact: Executive Secretary, 3161 North Pantano Road, Tucson, AZ 85715.

### The Legal Hurt of Chronic Pain II

November 19-20, 1981. The Registry Resort, Scottsdale. Sponsor: St. Luke's Hospital and Medical Center. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital and Medical Center, 525 North 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### Soft Tissue Tumors

November 21-23, 1981. McCormick Ranch Inn, Scottsdale, Arizona. Sponsor: Arizona Society of Pathologists. Contact: Grant A. Hertel, M.D., Program Chairman, Good Samaritan Hospital, 1033 E. McDowell Road, Phoenix, AZ 85006.

### The Adolescent Female

November 28-29, 1981. Doubletree Inn, Scottsdale. Sponsor: U of A College of Medicine. Contact: Attn: Faith Carlisi-Smith, Office of Continuing Medical Education & Outreach, U of A Health Sciences Center,



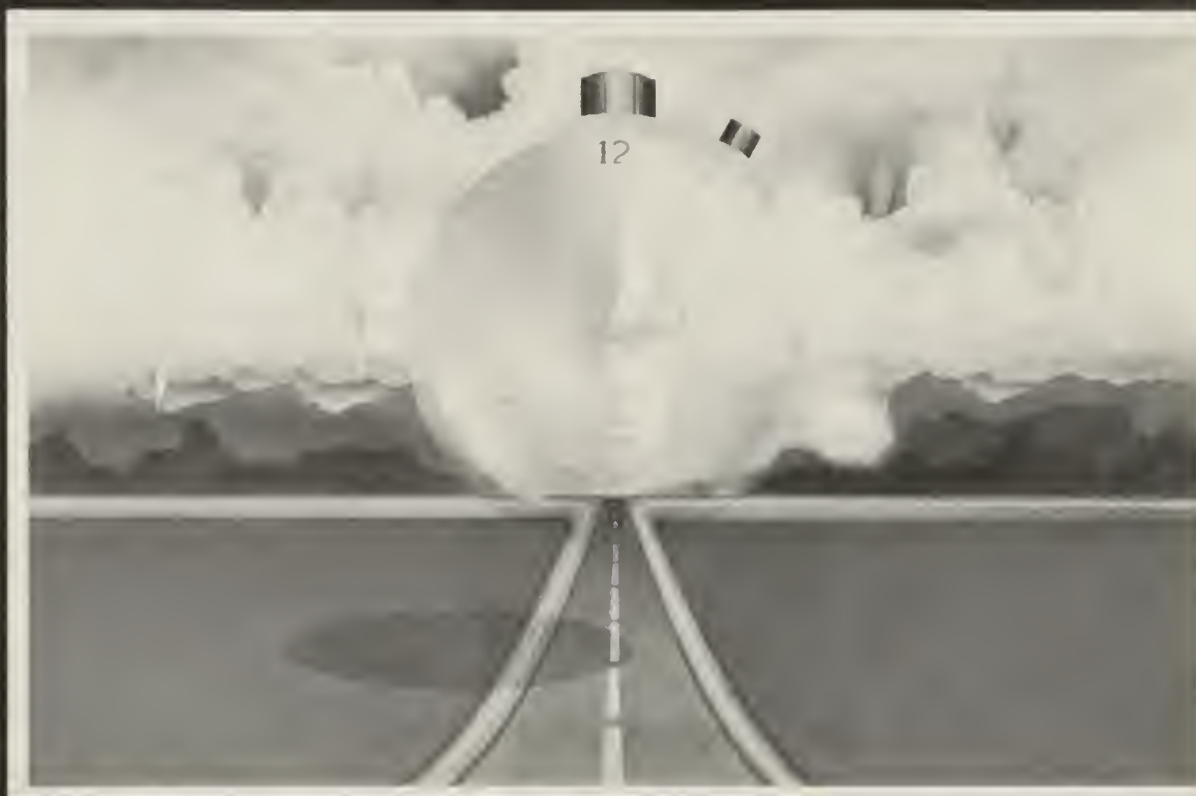
The treatment of critically injured patients demands a repertoire of highly specialized skills and training. Are you, and the people you work with, up on the latest techniques?

Attend Trauma Care '82, January 17-21, and open your mind to this innovative and crucial dimension of emergency medicine. This national symposium is sponsored by John C. Lincoln Hospital and Lincoln Institute of Surgery & Trauma in Phoenix. The Lincoln trauma team approach is acclaimed one of the most innovative and progressive in the West. Trauma Care '82 will provide an educational and enlightening forum for the exchange of ideas and methods on this dynamic aspect of emergency care. You'll learn about the most current trends in patient transport, team communication, neuro management in the I.C.U., and much more. There will be lectures, panel and small discussion groups and creative problem-solving sessions. The agenda is filled with noted national authorities in the field of trauma care, as well as an impressive roster of speakers from the staff of the John C. Lincoln Hospital Trauma Center.

In addition to all this, the American College of Surgeons is sponsoring a special Advanced Trauma Life Support Course, January 15-16, prior to the symposium (limited availability).

And what better setting could there be for this spectacular event than the great Southwest? Few places can boast its grandeur, or its warm winter climate. You'll stay at the luxurious new Alamos Resort in Scottsdale, a city that blends Old West charm with cosmopolitan chic. Spouses will be treated to a fun program of touring, shopping and sight-seeing. And you can top off your trip with a post-symposium jaunt to Mexico!

# There's a whole new world of trauma medicine. Are you ready to brave it?



Be a part of medical history in the making. Spend a week in the glorious Arizona desert while you're doing it! Reserve your place now for Trauma Care '82, one of the most important professional conferences of the year.

Call collect to Paul K. Halverson, Symposium Director at (602) 943-3641. Or write to the address below for all the details.



## TRAUMA CARE

Jan 82

John C. Lincoln Hospital  
and Trauma Center  
9211 North 2nd Street  
Phoenix, Arizona 85020



Tucson, AZ 85724. Approved for Category 1 credit.

## DECEMBER

### Therapeutics and Pharmacology

December 5, 1981. Arizona Health Sciences Center. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, Arizona 85724. Approved for Category 1 credit.

### Surgical Oncology

December 11-12, 1981. Arizona Health Sciences Center. Sponsor: U of A College of Medicine, and Am. College of Surgeons. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, Arizona 85721

## 1982

## FEBRUARY

### International Cataract Surgery Symposium 1982

February 15-17, 1982. The Alamos Resort, Scottsdale, Arizona. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 N. 18th St., Ste 105. Phoenix, Arizona 85006.

### Pediatric Update 1982

February 15-18, 1982. La Posada Resort Hotel, Scottsdale, Arizona. Sponsor: St. Joseph's Hospital and Medical Center, Dept. of Pediatrics. Contact: Ronald A. Christensen, M.D., Department of Pediatrics, St. Joseph's Hospital and Medical Center, 350 West Thomas Road, Phoenix, AZ 85013. Approved for 16 hours of Category 1 Credit.

### Frontiers in Ophthalmology

February 18-20, 1982. Arizona Biltmore, Phoenix. Sponsor: St. Luke's Hospital Medical Center. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital Medical Center, 525 N. 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

## MARCH

### Ninth Annual Barrow Neurological Symposium

March 11-13, 1982. LaPosada Inn Resort, Phoenix. Sponsor: St. Joseph's Hospital and Medical Center, Barrow Neurological Institute. Contact: Richard A. Thompson, M.D., 222 West Thomas road, Phoenix, Arizona 85013.

## MONTHLY OR WEEKLY

### Shrine Medics Meeting

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

### Office Psychiatry for the Primary Provider

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

### Counter Transference Group

Weekly, Thurs. 8—10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

### Monthly Meeting of Tucson Radiologists

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

### Pediatric Grand Rounds

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

### Review of Forensic Pathology Current Case, Special Topics

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.

## ARIZONA HEART INSTITUTE

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

### Clinical Conference Cardiovascular Medicine

Third Tues., 5:15 p.m., second floor classroom

## ARIZONA STATE HOSPITAL

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

### A.S.H. Psychiatric Grand Rounds

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm., Contact: Dr. Conger & Staff

### Clinical-Pathological Conference

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

### Medical Grand Rounds

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.

## BARROW NEUROLOGICAL INSTITUTE

### Medical Education

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### Neurology Teaching Conference

Tuesdays, 8:30-9:30 a.m., Eighth Floor Co Room.

### Neurosurgical Morbidity Conference

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### Neuro-ophthalmology Conference

Tuesdays, 7:30 a.m. in 8th floor neurology conference room.

### Spinal Injury Conference

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conference Rm.—a multidisciplinary review of admissions by neurosurgeons, orthopedists, and rehabilitation specialists

### Neuro-ophthalmology Conference.

Weekly, 7:30 a.m., 8th floor conference Room

### Neuropathology of Gross Specimen Conference

Thursday, 7:30-8:30 a.m. in the Morgue.

### Neurology-Neurosurgical

Fridays, 8-9 a.m., First Floor Conference Room

### Neuropathology or Neuroradiology Conferences

Friday, 9 a.m., Neuropathology Conference Room  
Neuropathology Conference Room  
Neuroradiology in First Floor Conference Room.

### Neurorehabilitation Conference

Tuesdays, noon, 8th Floor Conference Room

### Neurosurgical Journal Club

Saturdays, 9-11 a.m. in Eighth Floor Conference Room.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Thunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED, Director of Education.

### Medical Department Continuing Medical Education

4th Wednesday, 12 Noon, C119. May, June, Sept. & Nov.

### Tumor Board

Last Thursday of the month, 12 Noon, Education Center Classroom I & II, May, July, Sept., Nov.

### Surgical Department CME

4th Friday, 7 A.M., Educ. Center Classroom I & II. Contact: Brian Updegraff, M.D.

## CAMELBACK HOSPITAL

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, M.D.

### Clinical Conference

3rd Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

1400 South Dobson Road, Mesa, Arizona. Contact: L.A. Rosati, M.D. Approved for category 1 credit.

### CME Programs

Weekly Tuesday, 7 p.m., Cafeteria-West Entrance

### Clinical Conference - Dept. of Medicine

Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch Grande Rm.

### OB/GYN Medical Staff Conference

Weekly, Monday, 12:30-1:30 p.m. Grande Room

### Pediatric Case Conference

2nd. Friday, 12:30 p.m., Grande 2



## DOCTORS HOSPITAL

47 East Thomas Road, Phoenix, Arizona  
016 Contact: Medical Staff Secretary for  
Additional information.

Physicians Continuing Education Program  
at Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

00 N. Wilmont Road, Tucson, AZ 85712.  
Contact: Eric G. Ramsay, M.D. Approved for  
category 1 credit.

Family Practice Department Meeting  
at Monday, 12 Noon, Contact: R. Grossman,  
D.

## FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA

15 N. Beaver Street, P.O. Box 1268,  
Flagstaff AZ 86002. Contact: B. C.  
irschberg, M.D., CME Program Clinical  
conference. Approved for category 1 credit.

Interesting Case Conference  
at Tuesday, 12:30 P.M., Tollefson Rm.  
Clinical Conferences  
Weekly Tuesdays, 12:30 P.M., Tollefson Rm.  
Tumor Board Case Conference  
d Tuesday, 12:30 P.M., Hospital Conf. Rm.  
ortality & Morbidity Conference  
at Thursday, 12:30 P.M., Hospital Conf. Rm.

## GOOD SAMARITAN HOSPITAL

033 East McDowell Rd., Phoenix, AZ  
Contact: W. J. Howard, M.D. Approved for

category 1 credit.

### Anatomical Path. & Cytology

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf  
Rm.

### Gynecological Section Conference

2nd Monday, 12:30-1:30 p.m., West Rm

### Monday Noon Conference

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### Mortality/Morbidity, Surgery Comm.

2nd Monday, 11:30-2:00 p.m., West Rm.

### Obstetrical Section Conference

1st Monday, 12:30-1:30 p.m., West Rm.

### Pulmonary Disease Grand Rounds

Weekly, 12:00-1:00 p.m., D-5 North

### Family Practice Conference

Weekly Tuesday, 12:00-1:00 p.m., Fam  
Practice Conf. Rm.

### Pediatric Grand Rounds

3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul  
Bergeson, M.D.

### PM & R Noon Inservice

2nd & 4th Tuesday, 12 Noon, R-2 Conference  
Rm

### Surgical Grand Rounds

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### Clinical Cancer Fourm

3rd Wednesday, 12:00-1:00 p.m., West Rm,  
Contact: John A. Bruner, M.D.

### Combined Cardiovascular & Family Practice Conf.

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5  
North.

### Learning Disabilities

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

### OBGYN Dept. Review & Statistics

Weekly, 12:30-3:00 p.m., OBGYN Conf Rm

### Gynecological Pathology

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf  
Rm.

### GI Radiology Conference

1st Thursday, 12:00-1:00 p.m., F151,  
Radiology Conf. Rm.

### Phoenix Ultrasound Soc. Meeting.

Medical Education Building, Contact: Dr  
Ben Ora

### Neurology Grand Rounds

Weekly Thursday, 9:00-10:00 a.m., D-5 North

### Tumor Treatment Planning Conf.

2nd & 4th Thursdays, 12:00-1:00 p.m., F151  
Radiology

### Joint Tumor Gyn Conference

2nd Friday, 12:30-1:30 p.m., West Rm.

### Medical Grand Rounds

Weekly Friday, 8:00-9:00 a.m., West Rm.

### Neuropathy Conference

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

### Psychiatry Grand Rounds

Weekly Friday, 11:30-1:00 p.m., East Rm

## KINO COMMUNITY HOSPITAL,(THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact:  
Eric C. Ramsay, M.D., Approved for Category  
1 credit.

### Attending's Hour

5th Monday, 12:30 p.m., Contact: J.  
Goldberger, M.D.

### Infectious Disease Conference

3rd Monday, 12:30 p.m., Contact: Barry  
Friedman

### Ophthalmology Conference

1st Monday, 12:30 p.m., Contact: Bruce  
Gillers, M.D.

### Psychiatric Conference

2nd & 4th Mondays, Contact: J. Santiago,  
M.D.

# FLUID, ELECTROLYTE AND ACID-BASE BALANCE

a practical review and update

by

**Harry F. Weisberg, M.D.**

Clinical Professor of Pathology Medical College of Wisconsin

Associate Director Department of Pathology Mt. Sinai  
Medical Center Milwaukee, Wisconsin

October 24, 1981

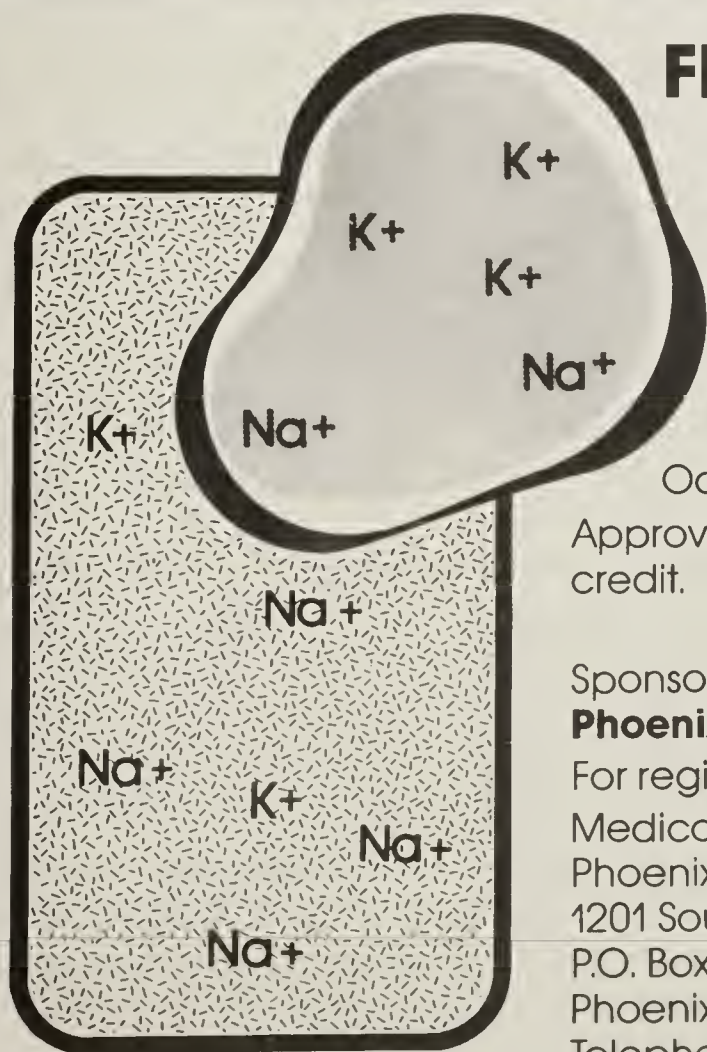
Approved for six hours of Category 1 CME  
credit.

Sponsored by the

**Phoenix Memorial Hospital Foundation**

For registration information contact:

Medical Staff Office  
Phoenix Memorial Hospital  
1201 South Seventh Avenue  
P.O. Box 21207  
Phoenix, Arizona 85003  
Telephone (602) 258-5111, ext. 331





**Surgical Conference**

Weekly Mondays, Contact: R. Fischer, M.D.

**Cardiology Conference**

4th Tuesday, 12:30 p.m., Contact: B. Phibbs, M.D.

**Clinical Pharmacology Conference**

5th Tuesday, 12:30 p.m., Contact: M. Katz, Clinical Pharm.

**Neurology Conference**

1st & 3rd. Tuesday, 12:30 p.m., Contact: J. Laguna, M.D.

**Radiology Conference**

2nd Tuesday, 12:30 p.m., Contact: M. Baker, M.D.

**Medical Surgical Grand Rounds**

2nd Wed., 12:30 p.m., Contact: Chief Medical Resident

**Medical Conference**

1st Wed, 12:30 p.m., Contact: Chief Medical Resident

**Cardiology Conference**

1st Thursday, 12:30 p.m., Contact: B. Phibbs, M.D.

**Endocrine Conference**

2nd Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

**GI Conference**

4th Thursday, 12:30 p.m., Contact: C. Kanun, M.D.

**Mortality & Morbidity Conference**

3rd. Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

**OB/GYN Dept. Meeting**

2nd Thursday, 2 p.m., Contact: J. Wurzel, M.D.

**OB/GYN Pathology Conference**

Weekly, Thursday, except 2nd, Contact: J. Wurzel, M.D.

**OB/GYN Sonograph/X-ray Conference**

4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

**Clinical Pathology**

5th Thursday, 12:30 p.m., Contact: J. Fleishman, M.D.

**Renal Conference**

1st Friday, 12:30 p.m., Contact: T. Pence, M.D.

**Hematology Conference**

2nd & 4th Friday, Contact: S. Ketchel, M.D.

**Rheumatology Conference**

3rd Friday, 12:30 p.m., Contact: J. Goldberger, M.D.

**Chest Conference**

5th Friday, 12:30 p.m., Contact: D. Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008

**Continuing Medical Education Program**

Every other Wednesday, 7-8 a.m.

**Clinical Conferences**

2nd & 4th Wednesday, 12-1 p.m., Medical Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008. Contact: Leonard Tamsky, M.D.

**Medicine Conference**

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

**Chest Surgery Conference**

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

**Hematology Conference**

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

**OB/GYN Dept. Grand Rounds**

Weekly Tuesday, 12 Noon, Santa Cruz Room

**Obstetrical Problem Conference**

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

**Orthopedic Conference**

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

**Pediatric Grand Rounds**

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

**Urology Discharge Planning Conference**

Weekly, 11:30 a.m., Station 42

**Hand Surgery Conference**

Weekly Wed, a.m., Santa Cruz Rm.

**Neurosurgery Discharge Planning**

Weekly Wed., 1:30 p.m., Station 42.

**OB/Neonatology Seminar**

Weekly, Wed. 7:30 a.m., Yavapai Rm.

**Clinical Psychiatric Conference**

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

**Surgery Conference**

Weekly Wed., 7-8 a.m., Surgical Dept.

**Current Concepts in Medicine & Surgery**

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

**Cardiology Conference**

Weekly Thurs., 2 p.m., Santa Cruz Rm.

**OB/GYN Resident Conference**

Weekly Thurs., 12 p.m., Yavapai Rm.

**GYN Endocrine Seminar**

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

**OB/GYN Surgical Pathology Conf.**

Weekly Friday, 7:30 a.m., Yavapai Rm.

**Orthopedic X-Ray Conference**

Weekly Friday, 7:30 a.m., Santa Cruz Rm

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N 20th Ave., Phoenix, AZ 85015.

Contact: Leonard M. Lapenson, M.D., Approved for category 1 credit.

**Clinical Conferences**

1st & 3rd Tuesdays, 12 noon, 5th floor auditorium.

**CPC or Medical-Surgical Forum**

4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.

Contact: Leland L. Fairbanks, M.D., Approved for category 1 credit.

**Pediatric Grand Rounds**

1st Tuesday, 7:30-8:30 a.m., Contact: D. Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**

Wed. Weekly, 8:00 a.m.

**Otolaryngology Grand Rounds**

4th Wednesday, 4-5 p.m., Conference Rm. A, Contact: N. Wendell Tood, M.D.

**Family Practice/Emergency Room Teaching Conference**

Thursday Weekly, 7:30-8:30 a.m., Conf. Rm. A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:

George Scharf, M.D. Approved for category 1 credit.

**Monthly Medical Education Seminar**

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

**Clinical Conferences**

Weekly Tuesday, 12:30 p.m., Kiva Conference Rm.

**Tumor Board Conference**

Weekly Friday, 12 p.m., Kiva Conf. Rm. Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251

Contact: W. S. Williams, M.D., Approved for category 1 credit.

**Family Practice Conference**

1st Monday, 12:30 p.m., Doctors' Lounge

**Emergency Medical Services Conference**

2nd Monday, 12:30 p.m., Doctors' Lounge

**Neurology/Neurosurgery Conference**

3rd Monday, 12:30 p.m., Doctors' Lounge

**CPC Conference**

4th Monday, 12:30 p.m., Doctors' Lounge

**Pediatrics Conference**

5th Monday, 12:30 p.m., Doctors' Lounge

**Pulmonary Conference**

1st Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiology Conference**

2nd Tuesday, 12:30 p.m., Doctors' Lounge

**Surgery Conference**

3rd Tuesday, 12:30 p.m., Doctors' Lounge

**Resident Grand Rounds**

4th Tuesday, 12:30 p.m., Doctors' Lounge

**Medical Subspecialties**

5th Tuesday, 12:30 p.m., Doctors' Lounge

**Uronephrology Conference**

3rd Thursday, 12:30 p.m., Doctors' Lounge

**Tumor Conference**

4th Thursday, 12:30 p.m., Doctors' Lounge

**GI/Med/Surg/Radiology Conference**

2nd Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 8501

Contact: Joseph C. White, M.D.

**OB/GYN Section Conference**

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor Conf. Rm.

**Genetics Conference**

Weekly Monday, 12:30 p.m., Pediatric Department.

**Pediatric Rounds**

Weekly Monday, Wed. & Friday, 10:30 a.m. Pediatric Department.

**Pediatric Grand Rounds**

4th Tuesday, 7:30-8:30 a.m., Contact: J. Kip Charlton, M.D.

**ECG Conference**

Weekly Tuesday, 12:30 p.m., Pediatric Department.

**Medical Grand Rounds**

Weekly Wednesday, 8 a.m., 1st Floor Conference Room.

**Visiting Professor Formal Presentation**

Weekly Thursday, 8 a.m., PIMC

**Visiting Professor Informal Presentation**

Weekly Thursday, 9:30 a.m., 1st floor Conference Rm.

**Visiting Professor Formal Presentation**

Weekly Thursday, 12:30 p.m., PIMC

**Nephrology Conference**

Weekly Fridays, 12:30 p.m., Pediatric Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact: Eric G. Ramsay, M.D. Approved for Category

# FIRST BIENNIAL SOUTH TEXAS CLINICAL DIABETES SYMPOSIUM

## Hilton Palacio Del Rio, San Antonio Texas November 6 - 7, 1981

### Sponsored by:

American Diabetes Association, Eli Lilly & Company, San Antonio Community Hospital, Ames Division of Miles Laboratories, Inc.,  
The Upjohn Company.

### Objective:

To familiarize the primary care physician with current research and its clinical application.

### M.E. Credit:

American Diabetes Association (LCCME) 8 credit hours of Category I. American Academy of Family Physicians - This program  
has been reviewed and is acceptable for 8 (elective) hours by the American Academy of Family Physicians.

### Cost:

\$5 for professionals - \$40 for students. To be used by American Diabetes Association for future educational endeavors.

### List of Topics

Etiology of Diabetes Mellitus  
Approach to the Patient out of Control  
Home Glucose Monitoring & Use of External Portable Pump  
Approach to Pediatric Diabetic  
Treatment and Prevention of Diabetic Emergencies  
Care of the Pregnant Diabetic

### Speakers:

Dr. George Cahill  
Dr. Fred Whitehouse  
Dr. David Schade  
Dr. Luther Travis  
Dr. Daniel Foster  
Dr. Robert Huff

**Also covered:** *Diabetic Control & Complications • Neuropathies, Impotency, Retinopathies & Emergencies • Education of the  
Diabetic & Family • Approaches to Office & Hospital Diabetes Education • Current Status of Oral Hypoglycemic  
Agents • Controversies in Diabetes Mellitus • 1) Oral Glucose Tolerance Test • 2) Contraception*

**Chairman of Symposium: Sherwyn L. Schwartz, M.D.**

**FOR MORE INFORMATION AND REGISTRATION CONTACT:** Mrs. Rose E. Vassey, 8042 Wurzbach, Suite 420,  
San Antonio, TX. 78229 (512) 690-8612

credit.

**Family Practice Department Meeting**  
1st Tuesday, 12 p.m., Contact Wm  
Moteforte.

**Ophthalmology Morbidity/Mortality Conf.**  
1st Tuesday, 12:15 p.m., Contact Kim  
Dowd.

**Current Concepts in Medicine**  
Weekly, Tuesday, 12 p.m., Auditorium  
**Hematology-Oncology Conference**  
1st Wednesday, 12:15-1:15 p.m., Contact S  
Salmon, M.D.

## ST. LUKE'S HOSPITAL MEDICAL CENTER

25 North 18th Street, Phoenix, AZ, Contact  
Erald L. Hansbro, M.D.

**Cardiac Conference**  
Weekly Monday, 12:15 p.m., Auditorium  
**Surgery Conference**  
1st Tuesday, 12:15 p.m., Auditorium  
**Emergency Medicine Conference**  
1st Wednesday, 12:15 p.m., Auditorium  
**Cardiovascular-Thoracic Record Review**  
1st Wednesday, 12:15 p.m., Auditorium  
**Psychiatry Conference**  
1st Thursday, 7 a.m., Auditorium  
**Combined Medical General Practice  
Conference**  
1st Friday, 12:15 p.m., Auditorium  
**Toxicology Grand Rounds**  
1st Friday, 7:30 a.m., Auditorium  
**Ophthalmology Conference**  
1st Saturday, 8:30 a.m., Auditorium

## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W St Mary's Road, Tucson, AZ 85703  
Contact see below

**Monthly Specialty Conference-Dept. of  
Surgery**  
1st Monday, 7:30 a.m., Century Rm A,  
Contact Med Staff Office.  
**Grand Rounds: Medical Surgical, Family  
Practice, Pathology, Radiology**  
Weekly Thursday  
**Emergency Medicine Lectures**  
Weekly Thursday, 8 a.m., Century Room A  
**Mental Health Update**  
1st Friday, 11:30-1:00 p.m., Century Rm A  
**Cardiology Conference**  
Weekly Friday, 8:00-9:00 a.m., Century Rm,  
Contact Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E Grant Road, Tucson, AZ 85716  
Contact Eric G Ramsay, M.D. Approved for  
Category 1 credit.  
**Cardiology Conference**  
Weekly Monday, except last, 12 Noon,  
Contact J Fernandez, M.D.  
**Dermatology Conference**  
4th Monday, 5:00 p.m., Contact R Miller,  
M.D.  
**Endocrinology Conference**  
Last Monday, 12 p.m., Contact M Parker,  
M.D.  
**Perinatal Conference**  
2nd Monday, 7:30 p.m., Contact J. Lohman,  
M.D.

### Chest Conference

3rd Tuesday, 12 noon, Contact William  
Nevin, M.D.

**Hematology Conference**  
4th Tuesday, 12 Noon, Contact M Boxer,  
M.D.

**Infectious Disease Conference**  
2nd Tuesday, 12 noon, Contact B Friedman,  
M.D.

**Nephrology Conference**  
1st Tuesday, 12 noon, Contact Dr Seltzer  
**Orthopedic Conference**  
1st Tuesday, 8:00 p.m., Contact Jay Katz,  
M.D.

**Pediatric Grand Rounds**  
1st & 3rd Tuesday, 12:30 p.m., Contact Dr  
Lightner

**Cardiac Cath. Conference**  
2nd & 4th Wednesday, 5:15 p.m., Contact L  
Buckels, M.D.

**Clinical Pathology Conference**  
Last Wednesday, 8:00 a.m., Contact Dr  
Fuchs.

**Family Practice Meeting**  
2nd Wednesday, 12:30 p.m., Jan., April, July,  
& Oct. Contact C. Mangelsdorf, M.D.

**Medical Conference**  
Weekly Wednesday, 8:00 a.m., Contact M  
Fuchs, M.D.

**Neurology-Neurosurgery Conference**  
Weekly Wednesday, 12 noon, Contact H W  
Buschsbaum, M.D.

**Dermatology Conference**  
1st Thursday, 12 noon, Contact R Friedman,  
M.D.

**Neuroradiology Conference**  
Weekly Thursday, 5:00 p.m., Contact N



Komar, M.D.

#### **Tumor Conference**

Weekly Thursday, 12 noon, Contact: Dr. Hastings.

#### **G—I Conference**

Weekly Friday, 12 noon, Contact: C. Krone, M.D.

#### **Interhospital Nuclear Medicine Conference**

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts, M.D.

#### **OBGYN Conference**

1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

#### **OBGYN Pathology Conference**

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

#### **Surgical Department Conference**

Weekly Saturday, 7:30 a.m., Contact: Dr. Hastings, TMC.

#### **Surgical Grand Rounds**

Weekly Saturday, 9:00 a.m., UAHSC-Room 5403, Contact: Dr. Norton.

### **PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER**

7th Street and Indian School Road, Phoenix, AZ 85012. Contact: Alfred Heiburn, M.D. Approved for Category 1 credit.

#### **GI X-Ray Clinical Correlation Conf.**

1st & 3rd Monday, 1 p.m., Rm. C435, Contact: Drs. Sanowski, & Nielsen.

#### **Medical/Surgical GI Conference**

1st & 3rd. Mondays, 3 p.m., Rm. 3134, Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext 493.

#### **GI Pathology Conf.**

2nd. & 4th Monday, 1 p.m., Path Conf. Rm, Contact: Dr. Sanowski.

#### **GI Grand Rounds**

Weekly Tuesday, 1 p.m., Contact: Drs. Sanowski, Kozarek & Partyka

#### **Cancer Symposium**

Weekly Wed., 1 p.m., T-5, Contact: Dr. Byrne, Ext. 426.

#### **Housestaff Pulmonary Disease Teaching Conf.**

Weekly Wed., 3-4 p.m., Contact: Dr. Rohwedder, Ext. 388.

#### **Medical Surgical Chest Conference**

1st & 3rd Thursday, Contact: Dr. Rohwedder or Dr. Gill.

#### **Cardiology Conference**

2nd Thursday, 1 p.m., Rm. T-5.

#### **Consultant Rounds**

1st Thursday, 1:30 p.m., Contact: Dr. Harlan

#### **Consultant Rounds**

2nd Thursday, 11:00 a.m., Contact: Dr. Schaffner

#### **Consultant Rounds**

4th Thursday, 8:00 a.m., Contact: Dr. Severino

#### **Medical Service Grand Rounds**

Weekly Friday, 11 a.m., Contact: Dr. Zeller

#### **GI Resident Conference**

Weekly Friday, 1:00 p.m., D446, Contact: Drs. Grobe, Phelps, Sanowski and Kozarek.

#### **Surgical Journal Review & Videotape Session**

Weekly 1 p.m., Room 3134.

### **PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER**

Prescott, Arizona 86313. Contacts listed below. Approved for category 1 credit.

#### **Medical Rounds**

1st & 3rd Thursdays, 10:00 a.m.-2:30 p.m.

#### **Surgical Rounds**

4th Thursday, 10 a.m.-2:30 p.m.

### **TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)**

3601 South Sixty Ave., Tucson, AZ 85723. Contacts listed below. Approved for category 1 credit.

#### **Medical Surgical Chest Conference**

Weekly Tuesday, 2 p.m., Contact: Dr. Young

#### **Medical Grand Rounds**

Weekly Wed., 12-1:00 p.m., VA Hospital Staff Conf. Rm. & (AHSC), Contact: Jay Smith, M.D.

#### **Surgical Grand Rounds**

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

#### **Endocrinology Seminar**

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm. N318, Contact: Dept. of Internal Medicine.

#### **Grand Rounds**

Weekly, Thursday, 11 a.m., Bldg. 107, Contact: J. Fitzharris, D.O.

#### **Vascular Radiology, Interesting Case Conf.**

Weekly Thursday, 12:00 noon.

#### **Neurology Grand Rounds**

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

### **YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)**

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

#### **Radiology Conference**

1st Tuesday, 7:00 a.m.

#### **Operation Outreach**

2nd Tuesday, 6:30 p.m.

#### **Pathology Conference**

4th Tuesday, 7:00 a.m.

#### **Operation Outreach**

2nd Wednesday, 7:00 a.m.

### **U OF A HEALTH SCIENCES CENTER**

Sponsor: U of A College of Medicine, Tucson, AZ 85724. Robert M. Anderson, M.D., Dir. of CME. Contact: See below. Approved for category 1 credit.

#### **Anesthesiology Board Review Conference**

2nd & 4th Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contacts: Dr. Vaughn & Kryc.

#### **Anesthesiology Basic/Clinical Sciences Lectures**

Weekly Thursday, 4-5 p.m., Room 5403

#### **Anesthesiology Case Discussion**

Weekly Wed., 7:00 a.m., AHSC, Dining Rm. C&D.

#### **Anesthesiology Resident Presentation**

1st Monday, 4-5 p.m., AHSC Dining Room, C&D, Contacts: Drs. Otto & Zehngut.

#### **Cancer Center Tumor Board Seminar**

3rd Tuesday, Monthly, 12-1 p.m., HSC Auditorium, Contact: Cancer Center

#### **Cardiac Catheterization Conference**

Weekly Friday, 4:00 p.m., Contact: Dr. Temkin.

#### **Cardiology Research Conference**

Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

#### **Tucson Cardiovascular Society**

1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

#### **Clinical Immunology, Allergy & Rheumatology Rounds**

Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

#### **Cerebrovascular Disease Conference**

Mondays, 5-6 p.m., Weekly, Rm. 5505 Contact: Jerry Goldston, M.D., Department of Surgery.

#### **Dermatology Rounds**

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

#### **Endocrinology Seminar**

Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

#### **Emergency Medicine Grand Rounds**

Tuesdays, 9 a.m., AHSC, Contact: Dr. Sanders.

#### **GI Pathology Conference**

4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

#### **GI Radiology Conference**

2nd. & 4th Mondays, 7:30 a.m., AHSC Contact: Dr. T. Hunter

#### **Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact: Dr. Manning

#### **Hematology-Oncology Clinical Conference**

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505 Contact: S. Salmon, M.D., Dept. of Internal Medicine.

#### **Medical Grand Rounds**

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

#### **Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

#### **Neuropathology Review Conference**

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

#### **Neuroradiology Conference**

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

#### **Neuromuscular Journal Conference**

2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

#### **Neuropathology Case Review**

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

#### **Neurosciences Seminar**

Weekly Tuesday & Friday, 7:30 a.m., AHSC Contact: Dr. C. Bamford

#### **Nuclear Medicine**

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

#### **Ophthalmology Grand Rounds**

3rd Friday, 7:30 a.m., AHSC, Contact: Dr. Herschler

#### **Orthopedic Rounds**

Saturday, 8:00 a.m., Contact: Dr. Peltier.

#### **Pain Conference**

3rd Monday, 4-5 p.m., AHSC Dining Rm C&D, Contact: Drs. Hameroff & Cork.

#### **Pathology Seminar**

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120 Contact: Dr. P. Finley

#### **Tucson Pathologist Conference**

1st Monday, 7:30 p.m., AHSC, Contact: Dr. R. Graham.

#### **Pediatric Grand Rounds**

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

#### **Pediatric Problem Patient Conference**

Weekly Wed., 8:00 a.m., Contact: Dr. Walson

#### **Pediatric Research Forum**

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones



# for Knotts in the night

Prescribe new formula

# Quinamm<sup>\*</sup>

## (quinine sulfate tablets)

each tablet contains quinine sulfate 260 mg

## Specific therapy for painful night leg cramps

# Merrell Dow

\*Trademark of MERRELL-NATIONAL LABORATORIES Inc.,  
Cayey, Puerto Rico 00633

Nocturnal recumbency leg muscle cramping is frequently an unwelcome bedfellow for many patients—especially those with arthritis, diabetes, or peripheral vascular disease... consider Quinamm... simple, convenient dosage—usually just one tablet at bedtime... can provide restful, welcome sleep without night leg cramps.

### Quinamm<sup>™</sup>

(quinine sulfate tablets)

CAUTION: Federal law prohibits dispensing without prescription  
BRIEF SUMMARY

#### INDICATIONS AND USAGE

For the prevention and treatment of nocturnal recumbency leg muscle cramps

#### CONTRAINDICATIONS

Quinamm may cause fetal harm when administered to a pregnant woman. Congenital malformations in the human have been reported with the use of quinine, primarily with large doses (up to 30 g) for attempted abortion. In about half of these reports the malformation was deafness related to auditory nerve hypoplasia. Among the other abnormalities reported were limb anomalies, visceral defects, and visual changes. In animal tests, teratogenic effects were found in rabbits and guinea pigs and were absent in mice, rats, dogs, and monkeys. Quinamm is contraindicated in women who are or may become pregnant. If this drug is used during pregnancy, or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus. Because of the quinine content, Quinamm is contraindicated in patients with known quinine hypersensitivity and in patients with glucose-6-phosphate dehydrogenase (G-6-PD) deficiency.

Since thrombocytopenic purpura may follow the administration of quinine in highly sensitive patients, a history of this occurrence associated with previous quinine ingestion contraindicates its further use. Recovery usually occurs following withdrawal of the medication and appropriate therapy.

This drug should not be used in patients with tinnitus or optic neuritis or in patients with a history of blackwater fever.

#### WARNINGS

Repeated doses or overdosage of quinine in some individuals may precipitate a cluster of symptoms referred to as cinchonism. Such symptoms, in the mildest form, include ringing in the ears, headache, nausea, and slightly disturbed vision; however, when medication is continued or after large single doses, symptoms also involve the gastrointestinal tract, the nervous and cardiovascular systems, and the skin.

Hemolysis (with the potential for hemolytic anemia) has been associated with a G-6-PD deficiency in patients taking quinine. Quinamm should be stopped immediately if evidence of hemolysis appears.

If symptoms occur, drug should be discontinued and supportive measures instituted. In case of overdosage, see OVERDOSAGE section of prescribing information.

#### PRECAUTIONS

##### General

Quinamm should be discontinued if there is any evidence of hypersensitivity (See CONTRAINDICATIONS). Cutaneous flushing, pruritus, skin rashes, fever, gastric distress, dyspnea, ringing in the ears, and visual impairment are the usual expressions of hypersensitivity, particularly if only small doses of quinine

have been taken. Extreme flushing of the skin accompanied by intense generalized pruritus is the most common form. Hemoglobinuria and asthma from quinine are rare types of idiosyncrasy.

In patients with atrial fibrillation, the administration of quinine requires the same precautions as those for quinidine. (See Drug Interactions.)

##### Drug Interactions

Increased plasma levels of digoxin and digitoxin have been demonstrated in individuals after concomitant quinidine administration. Because of possible similar effects from use of quinine, it is recommended that plasma levels for digoxin and digitoxin be determined for those individuals taking these drugs and Quinamm concomitantly.

Concurrent use of aluminum-containing antacids may delay or decrease absorption of quinine.

Cinchona alkaloids, including quinine, have the potential to depress the hepatic enzyme system that synthesizes the vitamin K-dependent factors. The resulting hypoprothrombinemic effect may enhance the action of warfarin and other oral anticoagulants.

The effects of neuromuscular blocking agents (particularly pancuronium, succinylcholine, and tubocurarine) may be potentiated with quinine, and result in respiratory difficulties.

Urinary alkalinizers (such as acetazolamide and sodium bicarbonate) may increase quinine blood levels with potential for toxicity.

##### Drug Laboratory Interactions

Quinine may produce an elevated value for urinary 17-ketogenic steroids when the Zimmerman method is used.

##### Carcinogenesis, Mutagenesis, Impairment of Fertility

A study of quinine sulfate administered in drinking water (0.1%) to rats for periods up to 20 months showed no evidence of neoplastic changes.

Mutation studies of quinine (dihydrochloride) in male and female mice gave negative results by the micronucleus test. Intraperitoneal injections (0.5 mM/kg) were given twice, 24 hours apart. Direct *Salmonella typhimurium* tests were negative when mammalian liver homogenate was added; positive results were found.

No information relating to the effect of quinine upon fertility in animal or in man has been found.

##### Pregnancy

Category X. See CONTRAINDICATIONS.

##### Nonteratogenic Effects

Because quinine crosses the placenta in humans, the potential for fetal effects is present. Stillbirths in mothers taking quinine have been reported in which no obvious cause for the fetal deaths was shown. Quinine in toxic amounts has been associated with abortion. Whether this action is always due to direct effect on the uterus is questionable.

##### Nursing Mothers

Caution should be exercised when Quinamm is given to nursing women because quinine is excreted in breast milk (in small amounts).

#### ADVERSE REACTIONS

The following adverse reactions have been reported with Quinamm in therapeutic or excessive dosage. (Individual or multiple symptoms may represent cinchonism or hypersensitivity.)

**Hematologic:** acute hemolysis, thrombocytopenic purpura, agranulocytosis, hypoprothrombinemia.

**CNS:** visual disturbances, including blurred vision with scotomata, photophobia, diplopia, diminished visual fields, and disturbed color vision; tinnitus, deafness, and vertigo; headache, nausea, vomiting, fever, apprehension, restlessness, confusion, and syncope.

**Dermatologic/allergic:** cutaneous rashes (urticarial, the most frequent type of allergic reaction; papular or scarlatiniform), pruritus, flushing of the skin, sweating, occasional edema of the face.

**Respiratory:** asthmatic symptoms.

**Cardiovascular:** anginal symptoms.

**Gastrointestinal:** nausea and vomiting (may be CNS-related), epigastric pain.

#### DRUG ABUSE AND DEPENDENCE

Tolerance, abuse, or dependence with Quinamm has not been reported.

#### OVERDOSAGE

See prescribing information for a discussion on symptoms and treatment of overdose.

#### DOSSAGE AND ADMINISTRATION

1 tablet upon retiring. If needed, 2 tablets may be taken nightly—1 following the evening meal and 1 upon retiring.

After several consecutive nights in which recumbency leg cramps do not occur, Quinamm may be discontinued in order to determine whether continued therapy is needed.

Product Information as of October, 1980

Licensor of Merrell<sup>™</sup>

MERRELL-NATIONAL LABORATORIES Inc.

Cayey, Puerto Rico 00633

Direct Medical Inquiries to

## Merrell



MERRELL DOW PHARMACEUTICALS INC.

Subsidiary of The Dow Chemical Company

Cincinnati, OH 45215, U.S.A.





**works well in your office...**

## **NEOSPORIN® Ointment** (polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**works just as well in their homes.**

- It's effective therapy for abrasions, lacerations, open wounds, primary pyodermas, secondarily infected dermatoses.
- It provides broad-spectrum overlapping antibacterial effectiveness against common susceptible pathogens, including staph and strep.



- It helps prevent topical infections, and treats those that have already started.
- It contains three antibiotics that are rarely used systemically.
- It is convenient to recommend without a prescription.

**NEOSPORIN® Ointment—for the office, for the home.**  
(polymyxin B-bacitracin-neomycin)

**Effective • Economical • Convenient • Recommendable**

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**WARNING:** Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neomycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as a failure to heal. During long term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

**PRECAUTIONS:** As with other antibacterial preparations, prolonged use may result in overgrowth of non-susceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

**ADVERSE REACTIONS:** Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section).

Complete literature available on request from Professional Services Dept. PML.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709

**Pediatric Specialty Conference**

Weekly Friday, 8:00 a.m., Contact Dr. Philip Valson.

**Psychiatric Grand Rounds**

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 5403, 5th Floor Auditorium

**Psychiatric Monthly Case Conference**

2nd Friday, 7:30 a.m., Contact Dr. Alan Levenson, Palo Verde Hospital

**Pulmonary Rounds**

Weekly Friday, 11:30 a.m., Contact Dr. Benjamin Burrows.

**Chest Radiology**

Weekly Monday, 5-6 p.m., Rm. 1535F, JAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

**Neuroradiology Teaching Conference**

Weekly Wednesday, 7:30 a.m., AHSC. Contact: Dr. Christenson

**Radiation Oncology Planning Conference**

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

**Radiology Interesting Case Conference**

Weekly Thursday, 12:00 noon, AHSC. Contact: Dr. Freundlich

**Gastrointestinal Radiology**

Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

**Radiology-Rheumatology Conference**

Weekly Thursday, 7:45 a.m., UAHSC, Library Rm.1535C.

**Uroradiology (Genitourinary Radiology)**

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

**Renal Pathology Conference**

1st & 3rd Thurs., 11:30 a.m., Contact Dr. Nagle.

**Residents Noon Conference**

Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact Dr. A. Greensher.

**Resident's Conference**

Wednesday, weekly 5-6 p.m., Diag Radiology Conf. Rm.

**Surgical Grand Rounds**

Saturdays, 9:00 a.m., Rm. 5403, AHSC.

Contact: Dr. Wangenstein.

**Surgical Morbidity & Mortality Conference**

Weekly Wed., 8:00 a.m., Contact Dr. Wangenstein.

**Vascular Surgery Conference**

Weekly Tuesdays, 5-6 p.m., AHSC Dining Room E

**Joint Thyroid Conference**

1st & 3rd Wed. Contact: S. C. Werner, M.D.

**Trauma Conference**

Monday, 4:00 p.m., UAHSC, Rm. 4410. Contact: Dr. Peltier.

**Toxicology Conference**

Weekly Tuesday, 8:00 a.m. Contact: Dr. Keith Likes Section.

**Tucson Ultrasonography Group**

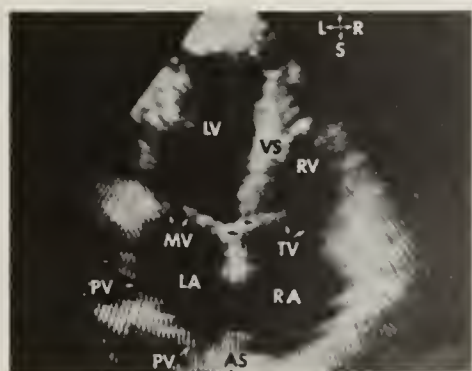
Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

**General Urology Conference**

Weekly Thursday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach

## DIAGNOSTIC ULTRASOUND

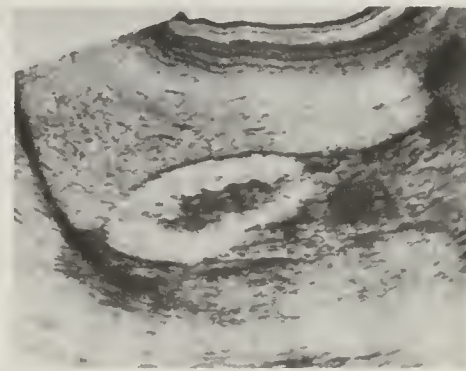
PERFORMED IN A PLEASANT ENVIRONMENT  
WITH THE ECONOMIC CONVENIENCE  
OF A PRIVATE OFFICE



4 Chamber View of Heart



Third Trimester Pregnancy



Normal Liver and Kidney

A safe non-invasive modality for evaluation of the  
Abdomen • Gravid Uterus • Heart • Eye • Thyroid • Retroperitoneum • Vascular Tree

Ben-Ora Imaging, Ltd.

Avi Ben-Ora, M.D.

909 E. Brill Street, Suite 210  
(602) 254-4577

Ultrasound Diagnostic Services

Avi Ben-Ora, M.D., Med. Director

3411 N. 5th Ave., Suite 410  
(602) 279-9375



**NME  
can set  
up the  
practice  
you want.**

**In the area  
you want.**

It's a goal we achieve by offering you a choice of over 60 well equipped acute care hospitals coast to coast; by offering you selected financial assistance, and by offering you management consulting when you begin your practice.

At National Medical Enterprises, we'll help you establish a comfortable and successful Primary Care practice.

Where you want it.

How you want it.

So whether you're interested in a solo, partnership, or a group practice, you should contact NME.

We're the experts.

For further information, contact:  
Raymond C. Pruitt, Director Physician Relations  
National Medical Enterprises  
11620 Wilshire Blvd., Los Angeles, California 90025.  
Call Toll-Free 800-421-7470  
or collect (213) 479-5526.

**NATIONAL MEDICAL  
ENTERPRISES, INC.**



"The Total Health Care Company."  
An Equal Opportunity Employer M/F

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully bound books. Choose from 30 different colors of durable Library Buckram

**\$14.00 per volume, (name imprint.75)**

**\$15.50 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

**Free** local pickup and delivery on 10 volumes or more

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338

### North Central Home Available OLDE ENGLISH CHARM 232 E. Medlock

This central corridor red brick home offers all the comforts of an English mansion in its compact 2100+ sq. ft. with 4 spacious bedrooms. The formal living room is graced by an old style fireplace. The dining room has plenty of room for the entire clan. A good sized pool & patio area with built-in B.B.Q. makes this brick yard a summertime retreat. This prestigious close-in location makes for a short ride to the office or shopping.

**\$115,000**



REALTOR®

G.R.I.

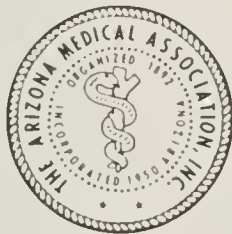


MULTI-  
MILLION  
DOLLAR  
PRODUCER

Res: 993-1243

5301 N. 7th Street Suite #406 Phoenix, AZ 85014

# WE PRINT WITH PRIDE



**THE ARIZONA MEDICAL ASSOCIATION**

*Offers*

**SUBSTANTIAL SAVINGS TO MEMBERS**

Call or Write "Press" Preston  
Printing Department  
810 West Bethany Home Road  
Phoenix, Arizona 85013

Phoenix Members  
Telephone 246-8901

Tucson Members  
Ask Operator for Enterprise 265

All Other Members  
Call Collect 246-8901



# Classified

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

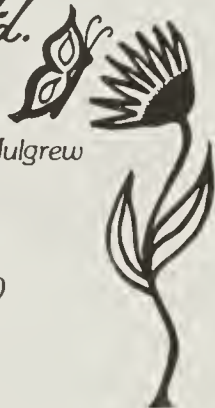
*Creative Design Ltd.*

Susan Yug Schnoerr

Cindy L. Mulgrew

1720 West Isleta Avenue  
Mesa, Arizona 85202  
(602)-839-6229 or 831-6380

Residential and Commercial  
Custom Interiors



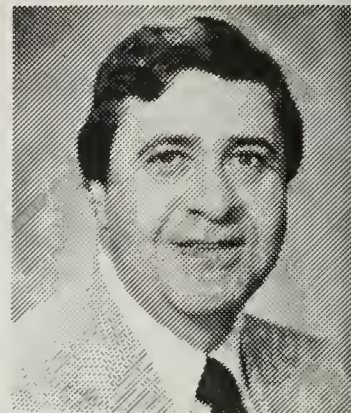
**THEY HAVE A  
FINE  
REPUTATION**

**House of Mailings**  
**P.O. Box 9432**  
**Phoenix, AZ., 85068**  
**(602) 942-3708**

## Louis Jacob

General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



**We Want You With Us**



**L. Louis Jacob Agency**

Complete Insurance Services  
Call Us for an Auto Quote



**Relief of Headaches  
Concerning Practice  
Management Problems.**



**J. Prekup & Assoc.**

**Problem Solvers for the Medical Profession.**

3033 N. Central, Suite 509-C Phoenix, Az 85012  
(602) 279-1884

*Tired of all that money going out?*

**For a competitive Quote on:**

- **Physicians & Surgeons Malpractice** •
- **Office Package** •
- **Automobile** •
- **Homeowners** •



**PHOENIX-AMERICAN INSURANCE AGENCY**  
1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*

## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### STAFF INTERNIST-PHOENIX, ARIZONA

Board eligible or certified in Internal Medicine, responsible for some diagnostic examinations, executive physical examinations, and counseling. Salary competitive with liberal benefits. An Affirmative Action/Equal Opportunity employer. Submit resume c/o Arizona Medicine, Box 826, 810 W. Bethany Home Road, Phoenix, AZ 85013.

### PRIVATE GROUP PRACTICE:

Psychiatrist, board certified or eligible, to join private group practice in metropolitan Phoenix area. Three office locations with mental health services for adults and children ranging from crisis intervention to analytically oriented outpatient treatment. Hospital work and community consultation available, medical consults with nonmedical therapists within group. Inquiries and resumes should be directed to Stephen D. Miller, ACSW, 6148 North 7th Street, Suite B, Phoenix, Arizona 85014. (602) 266-9727.

### X-RAY TECHNICIAN

Experienced, ARRT and state certified. Seeks position with orthopaedic surgeon or orthopaedic group in private office. Will consider relocating. Salary desired \$1000. to \$1200. per month. Contact: Arthur Seabrey, R.T., 4823 East Brill, Phoenix, Arizona 85008. (602) 275-9407.

### SOUTHERN ARIZONA GENERAL PRACTITIONER

finds her practice full after only 8 months. Now seeking associate interested in all aspects of rural family medicine including ICU and heavy OB. Minimum guarantee, office space, relocation expenses, other fringe benefits. Reply: Nancy Miner, Box 4058, Brentwood, TN 37027 (615) 377-1011

## REAL ESTATE

### ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### OSBORN MEDICAL CENTER

444 West Osborn Road. A high quality medical building in an excellent Central Corridor location near St. Joseph's Hospital has full service office suites available for 1-4 doctor practices at competitive rates. Attached parking garage for doctors and staff, radiology and retail pharmacy on premises. For details call H. Higgins, Manager, (602) 277-2993.

### MEMORIAL MEDICAL OFFICE BUILDING

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

### BEAUTIFUL CONDOMINIUM

Condominios Pilar  
San Carlos Bay, Mexico  
For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

### WANTED

Exercise Treadmill for cardiac stress testing. Must be in good condition. Reasonable. Phone: (602) 266-4469.

### MEDICAL SUITES FOR LEASE

Medical office space available for lease, with suites ranging from 718-1648 square feet, in the North Phoenix Medical Center, 9200 North Third Street, adjacent to John C. Lincoln Hospital and Trauma Center. Reasonable rental rates are offered with flexible lease terms and leasehold improvement allowance. For further information, contact Harold Kennedy, Association Administrator, John C. Lincoln Hospital and Trauma Center, 9211 North Second Street, Phoenix, Arizona 85020, or call (602) 943-2381, Ext. 1201.

### IN THE COOL PINES.

The ultimate in Mini-Ranches. A truly idyllic, park-like property of 2.66 acres backing up to the National Forest. Huge Ponderosa, Juniper, Oak and Walnut trees. A seasonal creek meanders thru the property. The very secluded 2 BR/1BA home is near new and contains numerous desirable features. Owners Terms. Contact Jack, Bishop Realty, P.O. Drawer 1059, Payson, Arizona 85541. Phone: (602) 474-5212 or A.H. (602) 478-4638.

### RURAL ACREAGE

We are presently subdividing property located in the Young, Arizona area (In Gila County) into parcels of approximately 40 acres each. Excellent terms. \$5,000/acre, amortized over ten years with balloon in five years. 5% down; 12% interest. Contact Jack, Bishop Realty, P.O. Drawer 1059, Payson, Arizona 85541. (602) 474-5212 or A.H. 478-4638.

### PINETOP MOUNTAIN CABIN - FOR RENT

White Mountain summer home. Ideal now for summertime activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

### COMPLETE, MODERN OFFICE

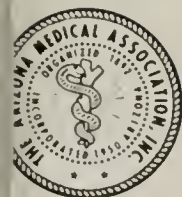
Equipment, everything from A-Z including electric typewriters, desks, examining tables, hematology analysis, pulmonary function, EKG, refrigerators, waiting room furniture, etc. Replacement value approximately \$50,000. Terms and price negotiable. Call (602) 772-8101 or 772-8998.



## INDEX TO ADVERTISERS

|                                               |          |
|-----------------------------------------------|----------|
| The Anesthesia Office, Inc. ....              | 679      |
| Arizona Laminating .....                      | 673      |
| Ben-Ora Imaging Ltd. ....                     | 729      |
| Burroughs Wellcome<br>Neosporin Ointment..... | 728      |
| Camelback Hospital .....                      | 671      |
| Classified Ads .....                          | 732, 733 |
| Clinical Diabetes Symposium .....             | 725      |
| Computed Neurological Scanning Center .....   | 673      |
| Creative Design, Ltd. ....                    | 732      |
| Doctors Central Directory .....               | 732      |
| Eli Lilly & Co.<br>Keflex .....               | 669      |
| Health Agencies of the West .....             | 674      |
| House of Mailings .....                       | 732      |
| Louis Jacobs .....                            | 732      |
| John C. Lincoln Hospital .....                | 721      |
| Brandly T. Lofton, Inc. ....                  | 730      |
| Medical Bookstore .....                       | 668      |

|                                              |                           |
|----------------------------------------------|---------------------------|
| Merrell Dow Pharmaceuticals<br>Quinamm ..... | 727                       |
| Mica Insurance Co. ....                      | 657                       |
| Mountain Bell .....                          | 672                       |
| National Medical Enterprises .....           | 730                       |
| Phoenix/American Insurance .....             | 732                       |
| Phoenix Memorial Hospital .....              | 723                       |
| Prekup and Associates .....                  | 732                       |
| Roche Labs<br>Valium .....                   | Second Cover, 667, 668    |
| Librax .....                                 | 676, 677                  |
| Bactrim.....                                 | Third Cover, Fourth Cover |
| Roswell Bookbinding .....                    | 730                       |
| Danny T. Sievert<br>Insurance.....           | 732                       |
| Smith Kline and French<br>Dyazide .....      | 678                       |
| Upjohn Company<br>Motrin .....               | 675, 676                  |
| Wickenberg Inn .....                         | 673                       |



# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

SSN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

## SEMINARS IN CONTINUING EDUCATION

### CARDIOLOGY

- Mitral Valve Prolapse  
The Internists Dilemma ..... 756  
*John W. Fitzgerald, M.D., et al*
- Editorial Comment..... 759  
*Kenneth B. Desser, M.D.*

### DERMATOLOGY

- Ingrowing Toenails Fact or Fancy  
(Unguis incarnatus: Onychocryptosis) ..... 759  
*Martin Snyder, D.P.M., A.A.C.F.S., et al*

### ENDOCRINOLOGY & METABOLISM

- Pituitary Gland CT..... 763  
*E. T. Clark, M.D.*

### GASTROENTEROLOGY & LIVER DISEASE

- Use of Transhepatic Biliary Stents  
in the Treatment of Obstructive Jaundice .... 765  
*R. A. Kozarek, M.D., et al*

### HEMATOLOGY

- Subacute Combined Degeneration,  
Neutrophilic Hypersegmentation, and  
the Absence of Anemia  
A Case Report ..... 768  
*John A. Hensing, M.D.*

### MEDICAL GENETICS

- An Overview of Genetic Counseling ..... 769  
*Richard C. Wagner, M.S.*

### ONCOLOGY

- Approaches to the Treatment  
of Pancreatic Carcinoma ..... 772  
*Matti S. Aapro, M.D.*

### PEDIATRICS

- A Community-Based Pediatrics  
Rotation for Medical Students ..... 774  
*Ruth M. Becker, R.N., F.N.P., et al*

### PSYCHIATRIC DISORDERS

- The Impaired Resident ..... 777  
*Michael W. Loes, M.D., et al*

## SPECIAL ARTICLE

- The University of Arizona  
College of Medicine  
An Update ..... 780  
*Louis J. Kettel, M.D.*

## EDITORIALS

- Market-Place Competition:  
The Answer to Cost Escalation? ..... 782  
*Clyde W. Kurtz, M.D.*
- Why Hospitals Are  
Practicing Medicine..... 788  
*Marshall B. Block, M.D.*
- President's Comment ..... 789  
*Clyde W. Kurtz, M.D.*
- The Pineal Gland and the Search  
for Its Secrets ..... 780  
*Bryant Benson, Ph.D., et al*

## BRIEFLY NOTED ..... 791

## ARMA REPORTS ..... 792

## FUTURE MEETINGS ..... 793

LIBRARY  
U.C. SAN FRANCISCO

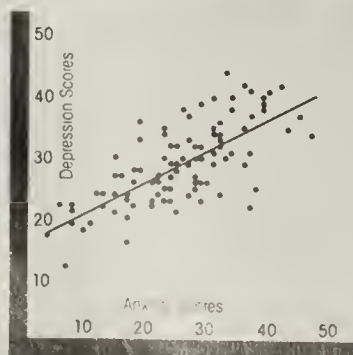
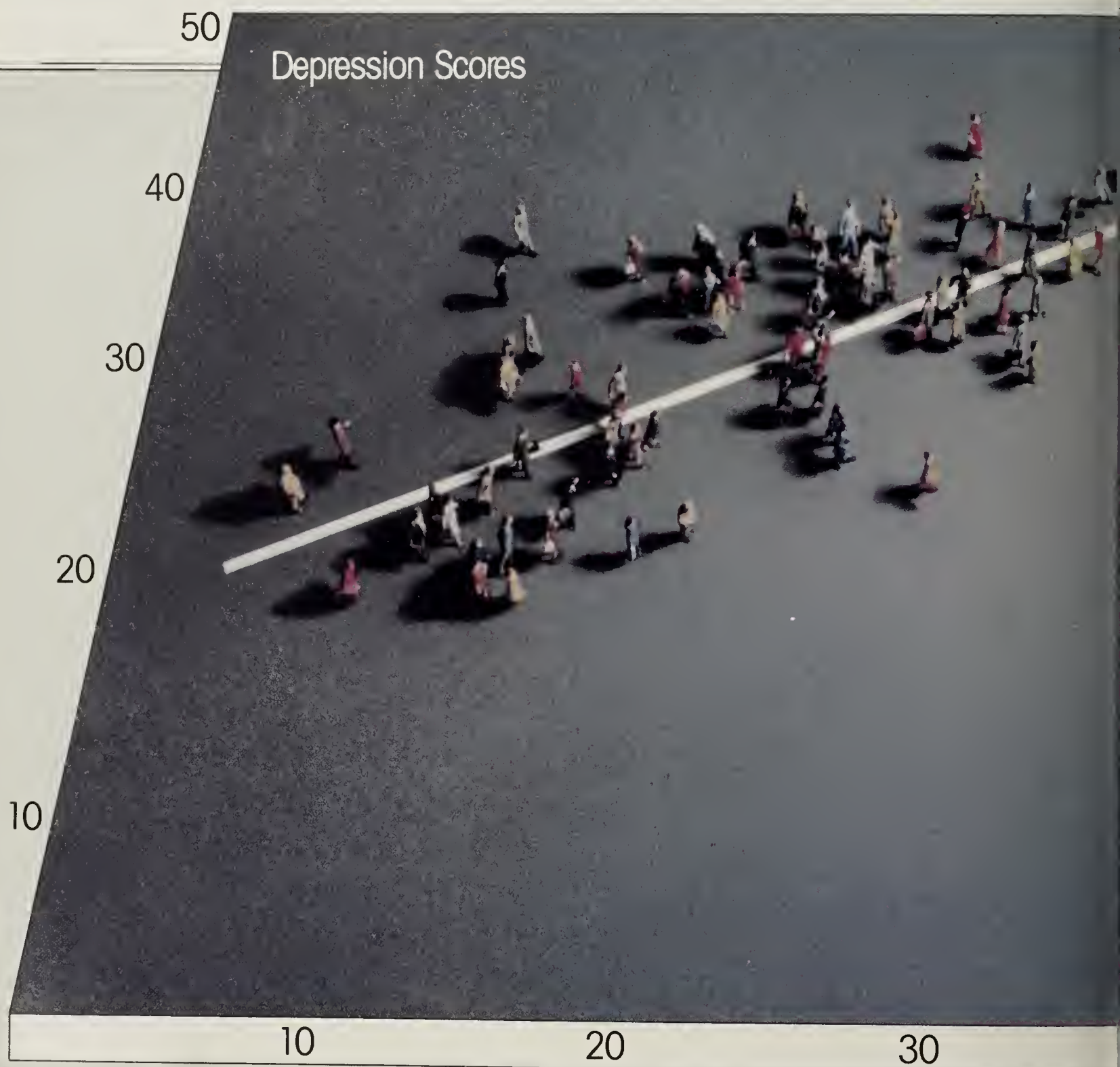
OCT 29 1981

THE LIBRARY, ACQUISITIONS DIV.  
U. OF CALIF., S.F.  
SAN FRANCISCO, CA 94143

XXXVIII, NO. 10



# FOR THE 7 OF 10 NONPSYCHOTIC



## Clear correlation between anxiety and depression<sup>3</sup>

The above graph illustrates a relationship between anxiety and depression, indicating that patients seldom present with anxiety or depression alone; more often they have both in varying degrees. Data based on a sampling of 100 outpatients (64 male; 36 female) seen at a general psychiatric clinic.

<sup>3</sup>Adapted from Claghorn, J. The anxiety-depression syndrome. *Psychosomatics* 11:438-441, Sept-Oct 1970.

Anxiety Scores

50

50

**Please see summary of product information on next page.**



## LIMBITROL® TABLETS Tranquilizer—Antidepressant

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Relief of moderate to severe depression associated with moderate to severe anxiety

**Contraindications:** Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

**Warnings:** Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

**Usage in Pregnancy:** Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies.

**Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.**

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

**Precautions:** Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated. Sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12.

In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

**Adverse Reactions:** Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and blurring. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs:

**Cardiovascular:** Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke.

**Psychiatric:** Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.

**Neurologic:** Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.

**Anticholinergic:** Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

**Allergic:** Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.

**Hematologic:** Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

**Gastrointestinal:** Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.

**Endocrine:** Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels.

**Other:** Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

**Overdosage:** Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. I.V. administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

**Dosage:** Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single *h.s.* dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

**How Supplied:** White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10. Prescription Paks of 50.

## Wickenburg has been an exciting meeting site since 1868.

### Where have you been?

In the friendly pioneer tradition of Western hospitality the Wickenburg Inn invites you to a secluded, rustic-modern tennis and guest ranch just 60 miles northwest of Phoenix.

The pleasing difference you'll find — endless sunshine, clear desert-mountain air, cactus covered hills, trail rides, steak fries — is the same world that greeted the first Wickenburg rendezvous in 1868.

Our casitas, ranch lodge, pool, 11 acrylic courts, stables and complete meeting facilities blend beautifully into a majestic Old West setting for seminars, conferences and executive board meetings for up to 75 people.

To reserve the perfect setting for your best meeting ever, contact our Sales Director at (602) 684-7811.



**THE WICKENBURG INN**  
Tennis and Guest Ranch  
P.O. Box P Dept. AM Wickenburg, AZ 85358



*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.



ROCHE PRODUCTS INC  
Manati, Puerto Rico 00701



## Our goal is to help you reach yours.

From medical school through retirement, your financial needs are continually changing. And your time to look after those needs is limited.

That's why Valley Bank has Medical Banking Specialists—trained in the financial needs of medical professionals.

Talk to us about credit and our many other services. They're outlined in our new

brochure: "Financial Services for Medical Professionals."

For more information about these services, call Jay Crawford, Medical Banking Director in Phoenix, at 261-5045. In Mesa, call Maria Evans, Medical Banking Specialist, at 261-1890. And in Tucson, call Brenda Koedyker, Assistant Vice President, at 792-7531.

**We go out of our way for you. Valley National Bank**



Member FDIC Equal Opportunity Lender



New from Janssen Pharmaceutica:  
Introducing a promising new approach  
to coccidioidomycosis therapy

# NIZORAL<sup>TM</sup>

TABLETS

## (ketoconazole)

### New:

**the first and only orally effective,  
broad-spectrum antifungal agent.**

NIZORAL (ketoconazole) is clinically effective against the major yeast and fungal pathogens. For *C. immitis*, the average MIC is less than 1  $\mu\text{g/ml}$ . Absorption of ketoconazole is rapid; mean peak plasma levels of approximately 3.5  $\mu\text{g/ml}$  are reached within 1-2 hours following a single 200 mg tablet. Development of resistance to NIZORAL has not yet been reported.

### Effective:

**"...a promising new drug for  
treatment of coccidioidomycosis."<sup>1</sup>**

Clinical studies employing 200 to 400 mg NIZORAL per day have shown a combined response rate\* of 35% after 26 (median) weeks of therapy; (at this point, however, 69% of patients were still being treated). Most patients were severe and chronic cases, either failures on or intolerant to amphotericin B.<sup>2</sup> (Recommended minimum treatment is 180 days.)

### Safe:

**"...can be safely administered  
for prolonged periods..."<sup>3</sup>**

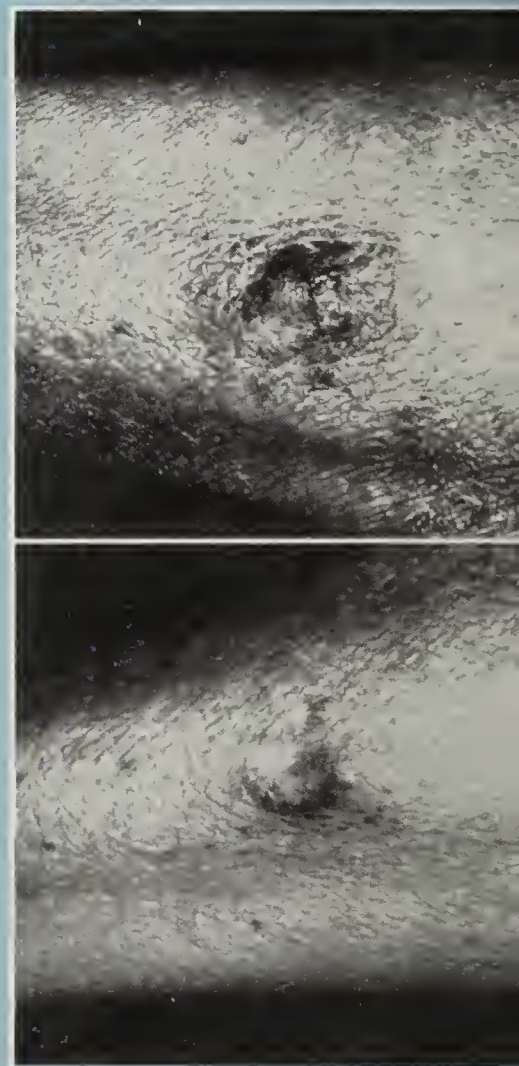
Freedom from long-term toxicity permits use of extended therapeutic courses of NIZORAL, when indicated, and provides an extra margin of safety in presumptive antifungal therapy. Long-term administration has revealed no organ toxicity and no consistent changes in important hematological or biochemical values. Infrequent, transient increases in serum liver enzymes have been seen. Adverse reactions were generally minor and only rarely required withdrawal of therapy.

### Convenient:

**once-a-day oral regimen  
fosters compliance...facilitates use  
both in and out of the hospital.**

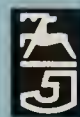
\*Includes cases in remission or markedly improved (no evidence of active disease); both mycological and clinical criteria were considered in measuring overall response.

For further information on NIZORAL write: Professional Services,  
Janssen Pharmaceutica Inc., 501 George St., New Brunswick, N.J. 08903.  
See the facing page for Complete Prescribing Information.



**Top:** Cutaneous lesion, disseminated coccidioidomycosis, before therapy.

**Bottom:** Lesion markedly resolved after oral NIZORAL therapy; photographed at 18 months.



**JANSSEN**  
PHARMACEUTICA



NEW orally effective

# NIZORAL<sup>TM</sup>

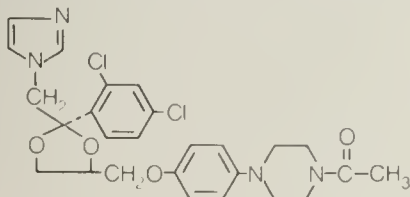
TABLETS

## (ketoconazole)

One tablet a day provides  
broad-spectrum antimycotic efficacy

### DESCRIPTION

NIZORAL<sup>TM</sup> (ketoconazole) is a synthetic broad-spectrum antifungal agent available in scored white tablets, each containing 200 mg ketoconazole. Ketoconazole is *cis*-1-acetyl-4-[4-[[2-(2,4-dichlorophenyl)-2-(1*H*-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl]methoxy]phenyl]piperazine and has the following structural formula



NIZORAL<sup>TM</sup> is a white to slightly beige, odorless powder, soluble in acids, with a molecular weight of 531.44

### CLINICAL PHARMACOLOGY

Mean peak plasma levels of approximately 3.5 µg/ml are reached within 1 to 2 hours, following oral administration of a single 200 mg dose taken with a meal. Subsequent plasma elimination is biphasic with a half-life of 2 hours during the first 10 hours and 8 hours thereafter. Following absorption from the gastrointestinal tract, NIZORAL<sup>TM</sup> is converted into several inactive metabolites. The major identified metabolic pathways are oxidation and degradation of the imidazole and piperazine rings, oxidative O-dealkylation and aromatic hydroxylation. About 13% of the dose is excreted in the urine, of which 2 to 4% is unchanged drug. The major route of excretion is through the bile into the intestinal tract. *In vitro*, the plasma protein binding is about 99%, mainly to the albumin fraction. Only a negligible proportion of NIZORAL<sup>TM</sup> reaches the cerebral spinal fluid. NIZORAL<sup>TM</sup> is a weak dibasic agent and thus requires acidity for dissolution and absorption.

NIZORAL<sup>TM</sup> is active against clinical infections with *Candida* spp., *Coccidioides immitis*, *Histoplasma capsulatum*, *Paracoccidioides brasiliensis*, and *Phialophora* spp. Development of resistance to NIZORAL<sup>TM</sup> has not yet been reported.

The following preclinical data are available, however, their clinical significance is unknown. NIZORAL<sup>TM</sup> is active *in vitro* against dermatophytes, dimorphic fungi, eumycetes, yeasts, actinomycetes, phycomycetes and various other fungi. In animal models, activity has been demonstrated against *Candida* spp., dermatophytes (*Trichophyton* spp., *Microsporum* spp., *Epidermophyton floccosum*), *Blastomyces dermatitidis*, *Histoplasma capsulatum*, *Malassezia furfur*, *Coccidioides immitis*, and *Cryptococcus neoformans*.

**Mode of Action:** *In vitro* studies suggest that NIZORAL<sup>TM</sup> impairs the synthesis of ergosterol, which is a vital component of fungal cell membranes. Tests in animals suggest this mechanism is not important in mammalian cells.

### INDICATIONS AND USAGE

NIZORAL<sup>TM</sup> is indicated for the treatment of the following fungal infections: candidiasis, chronic mucocutaneous candidiasis, oral thrush, candiduria, coccidioidomycosis, histoplasmosis, chromomycosis, and paracoccidioidomycosis. NIZORAL<sup>TM</sup> should not be used for fungal meningitis because it penetrates poorly into the cerebral-spinal fluid.

For the initial diagnosis, the infective organism should be identified, however, therapy may be initiated prior to obtaining laboratory results.

### CONTRAINDICATIONS

NIZORAL<sup>TM</sup> is contraindicated in patients who have shown hypersensitivity to the drug.

### WARNINGS

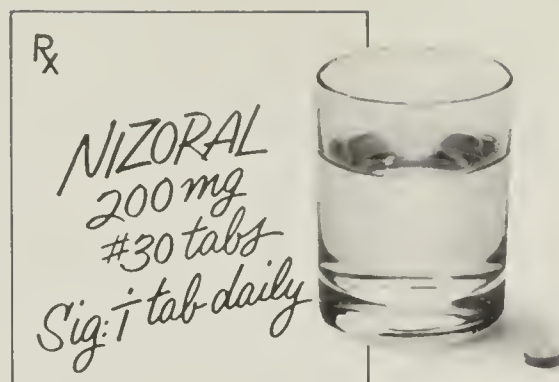
In female rats treated three to six months with ketoconazole at dose levels of 80 mg/kg and higher, increased fragility of long bones, in some cases leading to fracture, was seen. The maximum "no-effect" dose level in these studies was 20 mg/kg (2.5 times the maximum recommended human dose). The mechanism responsible for this phenomenon is obscure. Limited studies in dogs failed to demonstrate such an effect on the metacarpals and ribs.

### PRECAUTIONS

**General:** In four subjects with drug-induced achlorhydria, a marked reduction in NIZORAL<sup>TM</sup> absorption was observed. NIZORAL<sup>TM</sup> requires acidity for dissolution. If concomitant antacids, anticholinergics, and H<sub>2</sub>-blockers are needed, they should be given at least two hours after NIZORAL<sup>TM</sup> administration. In cases of achlorhydria, the patients should be instructed to dissolve each tablet in 4 ml aqueous solution of 0.2 N HCl. For ingesting the resulting mixture, they should use a glass or plastic straw so as to avoid contact with the teeth. This administration should be followed with a cup of tap water.

**Drug Interactions:** There is no evidence for clinically significant interaction with oral anticoagulant or oral hypoglycemic agents.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:** The dominant lethal mutation test in male and female mice revealed that single oral doses of NIZORAL<sup>TM</sup> as high as 80 mg/kg produced no mutation in any stage of germ cell development. The Ames' *Salmonella* microsomal activator assay was also negative.



**Pregnancy:** Teratogenic effects. *Pregnancy Category C.* NIZORAL<sup>TM</sup> has been shown to be teratogenic (syndactylia and oligodactylia) in the rat when given in the diet at 80 mg/kg/day, (10 times the maximum recommended human dose). However, these effects may be related to maternal toxicity, evidence of which also was seen at this and higher dose levels.

Nonteratogenic effects. NIZORAL<sup>TM</sup> has also been found to be embryotoxic in the rat when given in the diet at doses higher than 80 mg/kg during the first trimester of gestation.

In addition, dystocia (difficult labor) was noted in rats administered NIZORAL<sup>TM</sup> during the third trimester of gestation. This occurred when NIZORAL<sup>TM</sup> was administered at doses higher than 10 mg/kg (higher than 1.25 times the maximum human dose).

It is likely that both the malformations and the embryotoxicity resulting from the administration of NIZORAL<sup>TM</sup> during gestation are a reflection of the particular sensitivity of the female rat to this drug. For example, the oral LD<sub>50</sub> of NIZORAL<sup>TM</sup> given by gavage to the female rat is 166 mg/kg, whereas in the male rat the oral LD<sub>50</sub> is 287 mg/kg.

**Nursing Mothers:** Since NIZORAL<sup>TM</sup> is probably excreted in the milk, mothers who are under NIZORAL<sup>TM</sup> treatment should not breast-feed the child.

**Pediatric Use:** Safety in children under two years of age has been documented in a limited number of cases.

### ADVERSE REACTIONS

NIZORAL<sup>TM</sup> is usually well tolerated. Most adverse reactions reported have been mild and transient and have only rarely required withdrawal of therapy. The most frequent adverse reactions were nausea and/or vomiting, which occurred in approximately 3% of patients. Abdominal pain was reported in approximately 1.2% of patients, pruritus in approximately 1.5% of patients. The following have been reported in less than 1% of patients: headache, dizziness, somnolence, fever and chills, photophobia, and diarrhea. Infrequent, transient increases in serum liver enzymes have been seen.

### OVERDOSAGE

In the event of accidental overdosage, supportive measures, including gastric lavage with sodium bicarbonate, should be employed.

### DOSEAGE AND ADMINISTRATION

**Adults:** The recommended starting dose of NIZORAL<sup>TM</sup> is a single daily administration of 200 mg (one tablet). In very serious infections or if clinical responsiveness is insufficient within the expected time, the dose of NIZORAL<sup>TM</sup> may be increased to 400 mg (two tablets) once daily.

#### Children:

|                                 |                                |
|---------------------------------|--------------------------------|
| Children weighing 20 kg or less | 50 mg (1/4 tablet) once daily  |
| Children weighing 20-40 kg      | 100 mg (1/2 tablet) once daily |
| Children weighing over 40 kg    | 200 mg (1 tablet) once daily   |

Generally, treatment should be continued until all clinical and laboratory tests indicate that active fungal infection has subsided. Inadequate periods of treatment may yield poor response and lead to early recurrence of clinical symptoms. Minimum treatment for candidiasis is one or two weeks. Patients with chronic mucocutaneous candidiasis usually require maintenance therapy. Minimum treatment for the other indicated systemic mycoses is six months.

### HOW SUPPLIED

NIZORAL<sup>TM</sup> is available as white, scored tablets containing 200 mg of ketoconazole debossed "JANSSEN". They are supplied in bottles of 60 tablets.

U.S. Patent Pending  
NDC 50458-220-06 (60 tablets)

May 1981

Manufactured by:  
Janssen Pharmaceutica n.v.  
B-2340 Beerse, Belgium

For:  
Janssen Pharmaceutica Inc.  
New Brunswick, New Jersey 08903 USA

### References:

1. Brass C, Galgiani JN, Campbell SC, et al. Therapy of disseminated or pulmonary coccidioidomycosis with ketoconazole. *Reviews of Infectious Diseases* 2 (4): 656-660, 1980.
2. Data on file, Janssen Pharmaceutica.
3. Graybill JR, Lundberg D, Donovan W, et al. Treatment of coccidioidomycosis with ketoconazole. Clinical and laboratory studies of 18 patients. *Reviews of Infectious Diseases* 2 (4): 661-673, 1980.

Committed to research...  
because so much remains to be done.



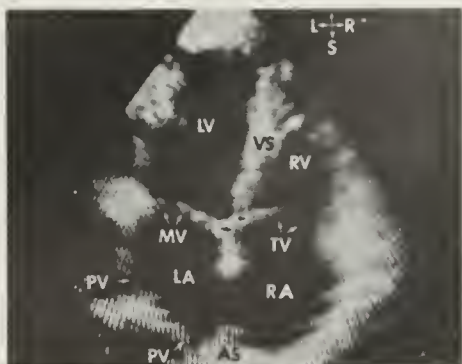
**JANSSEN**  
PHARMACEUTICA

Janssen Pharmaceutica Inc. 501 George St. New Brunswick, N.J. 08903



# DIAGNOSTIC ULTRASOUND

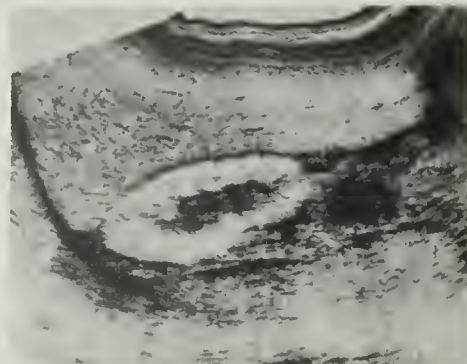
PERFORMED IN A PLEASANT ENVIRONMENT  
WITH THE ECONOMIC CONVENIENCE  
OF A PRIVATE OFFICE



4 Chamber View of Heart



Third Trimester Pregnancy



Normal Liver and Kidney

A safe non-invasive modality for evaluation of the  
Abdomen • Gravid Uterus • Heart • Eye • Thyroid • Retroperitoneum • Vascular Tree

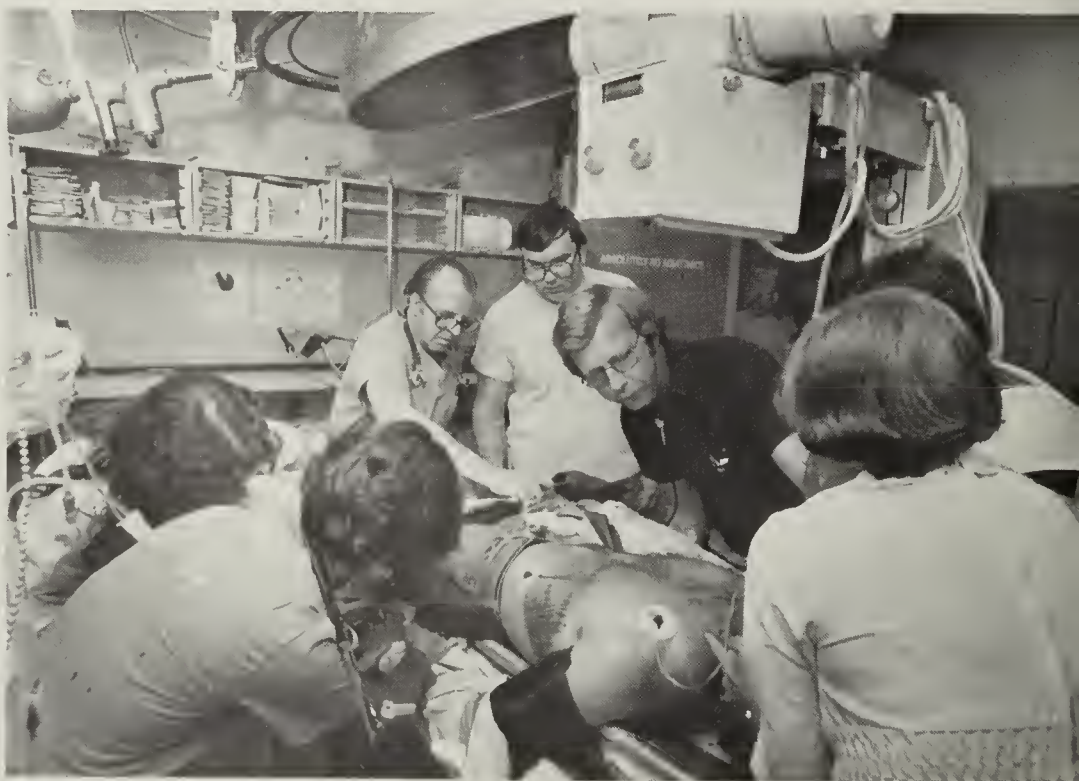
**Ben-Ora Imaging, Ltd.**  
**Avi Ben-Ora, M.D.**  
909 E. Brill Street, Suite 210  
(602) 254-4577

**Ultrasound Diagnostic Services**  
**Avi Ben-Ora, M.D., Med. Director**  
3411 N. 5th Ave., Suite 410  
(602) 279-9375

## Our trauma team . . .

The ability to mobilize people and facilities on a moment's notice is essential in treating trauma victims. The Lincoln Hospital Trauma Center has adopted a systematic team response to and established protocols for the treatment of the critically injured patient. Because the Lincoln Hospital Trauma Center is a *total medical service*, there is no need to contact a specific physician when making a referral. Simply call the Trauma Center's toll-free line.

**PHYSICIAN REFERRAL LINE**  
**1-800-352-7981**



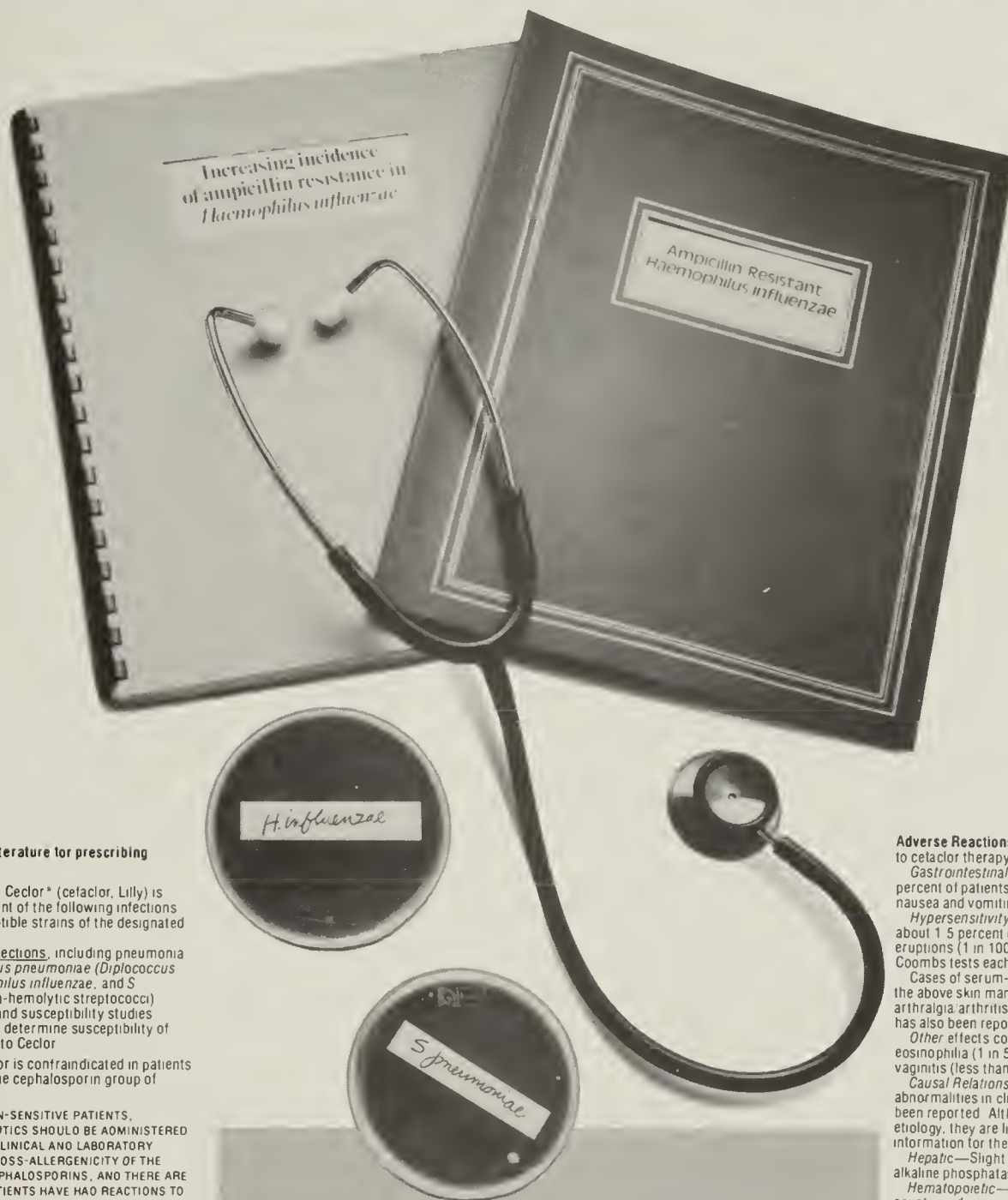
 **John C. Lincoln Hospital**  
**TRAUMA CENTER**  
9211 North Second Street  
Phoenix, Arizona 85020

**When time counts . . . count**  
**on the 24-hour services of the**  
**Lincoln Hospital Trauma Center!**

# the fine line between life and death



# An added complication... in the treatment of bacterial bronchitis\*



**Brief Summary.** Consult the package literature for prescribing information.

**Indications and Usage:** Cefclor\* (cefclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor.

**Contraindication:** Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

**Warnings:** IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS TO BOTH DRUG CLASSES (INCLUDING ANAPHYLAXIS AFTER PARENTERAL USE).

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

**Precautions:** If an allergic reaction to cefclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistest\* tablets but not with Tes-Tape\* (Glucose Enzymatic Test Strip, USP, Lilly).

**Usage in Pregnancy:** Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

**Usage in Infancy:** Safety of this product for use in infants less than one month of age has not been established.

**Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis\*—are sensitive to treatment with Cefclor.<sup>1-6</sup>**

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.<sup>7</sup>

## Cefclor®

### cefclor

Pulvules®, 250 and 500 mg

**Adverse Reactions:** Adverse effects considered related to cefclor therapy are uncommon and are listed below. Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

**Hypersensitivity reactions** have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100), pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients.

Cases of serum-sickness-like reactions, including the above skin manifestations, fever, and arthralgia/arthritis, have been reported. Anaphylaxis has also been reported.

**Other effects** considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

**Causal Relationship Uncertain**—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

**Hepatic**—Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

**Hematopoietic**—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

**Renal**—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[103080R]

\*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

**Note:** Cefclor\* (cefclor) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

#### References

1. Antimicrob. Agents Chemother., 8:91, 1975.
2. Antimicrob. Agents Chemother., 11:470, 1977.
3. Antimicrob. Agents Chemother., 13:584, 1978.
4. Antimicrob. Agents Chemother., 12:490, 1977.
5. Current Chemotherapy (edited by W. Siegenthaler and R. Luthy), II, 880. Washington, D.C.: American Society for Microbiology, 1978.
6. Antimicrob. Agents Chemother., 13:861, 1978.
7. Data on file, Eli Lilly and Company.
8. Principles and Practice of Infectious Diseases (edited by G. L. Mandell, R. G. Douglas, Jr., and J. E. Bennett), p. 487. New York: John Wiley & Sons, 1979.

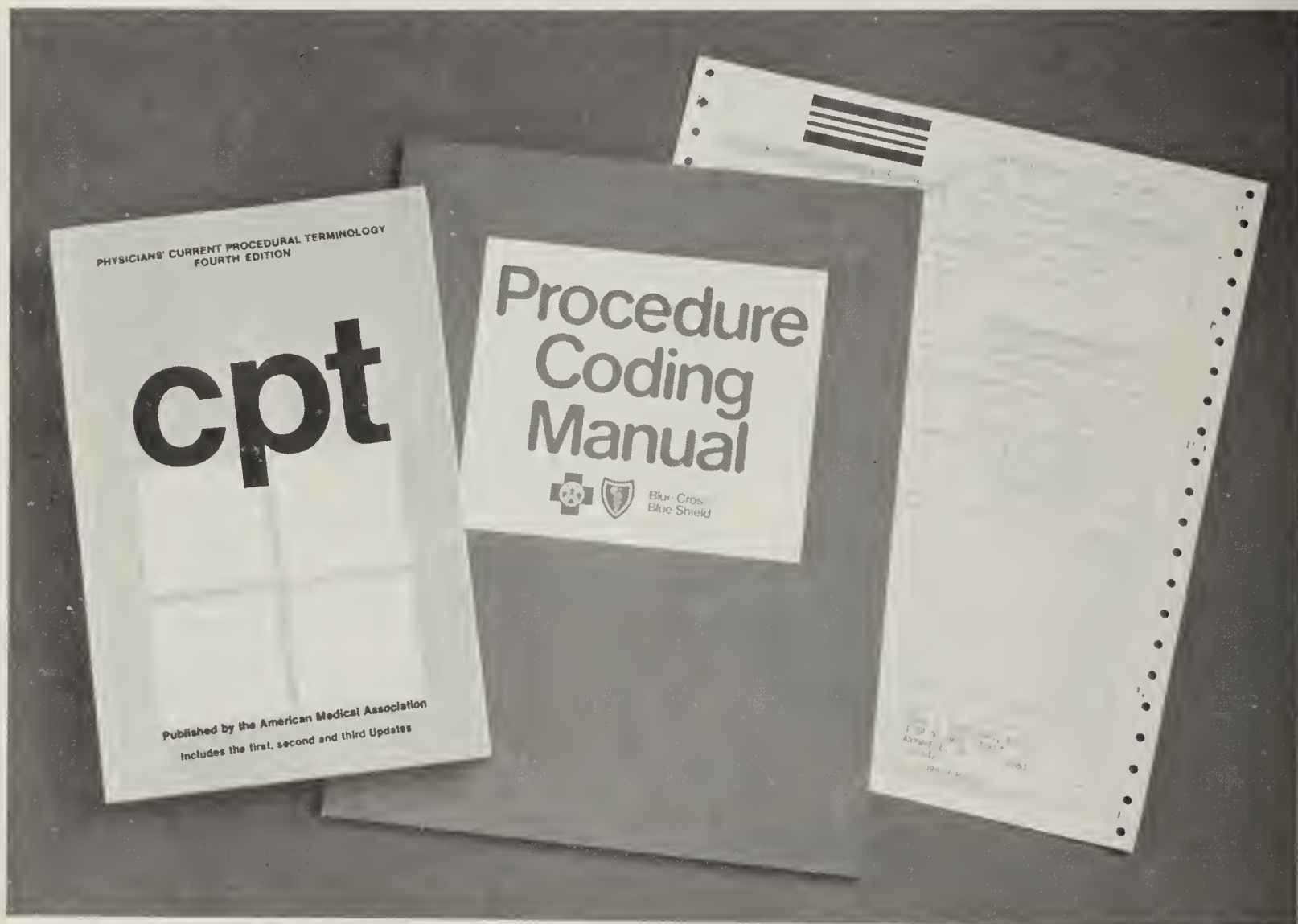
**Lilly**

Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285. Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630.

100061



# Your cash flow can depend on "paper flow." Here are 3 ways to improve it!



We process thousands of claims every day, and that requires a computer. But it can be easily confused without precise coding. When it "kicks out" an improperly coded claim, someone has to solve the mystery and hand-process the claim. That causes delays.

When a claim is "clean" (one that is accurate, complete and for a covered service) our computer can turn a claim into a check in less than two weeks. The trick is to give it the right facts. If you do that, we can dramatically reduce claims turnaround time and get your checks out faster.

We'd like you to have a free copy of our procedure coding manual to help you in filing accurate claims for your patients. It's easy to use and referenced by specialty. We also accept the AMA-

approved CPT coding system if you prefer. (Copies of that manual may be purchased through the AMA office.) We'll also provide you with a supply of the AMA standard claim form, already imprinted with your name and identification number. For information on any of these claims filing aids, contact your Blue Cross & Blue Shield Professional Relations representative.

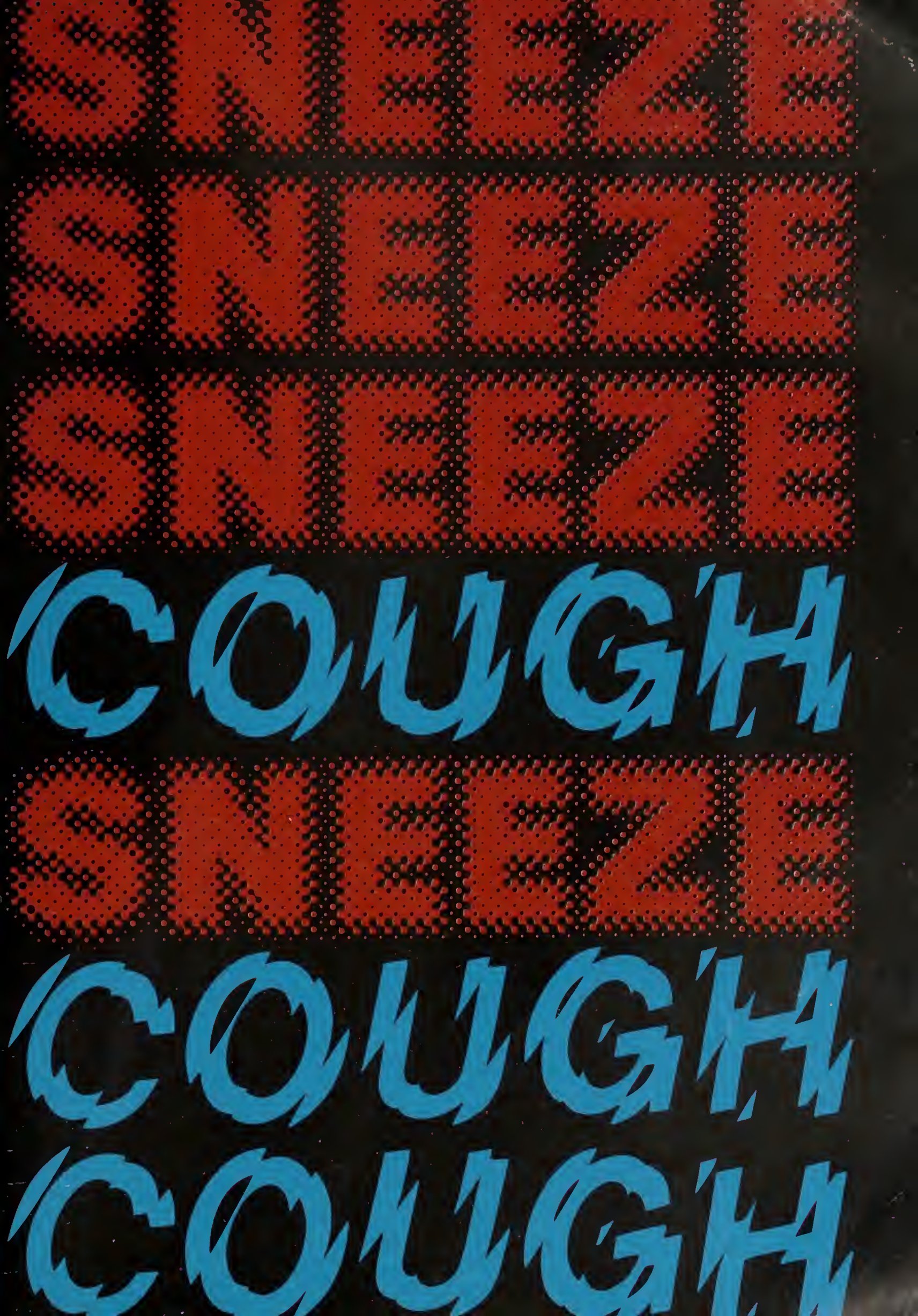


**Blue Cross  
Blue Shield**  
of Arizona

Phoenix: 321 W. Indian School / 248-8795 or 279-5341 • Tucson: 2545 E. Adams / 795-8029 • Flagstaff: 2304 N. 4th Street / 526-0232

® Registered Mark Blue Cross Association ® Registered Mark Blue Shield Association





COUGH

COUGH

COUGH



# For Sneezing and Nasal Congestion

## RU-TUSS<sup>®</sup> TABLETS

Each prolonged action tablet contains:

|                                             |         |
|---------------------------------------------|---------|
| Phenylephrine Hydrochloride . . . . .       | 25 mg   |
| Phenylpropanolamine Hydrochloride . . . . . | 50 mg   |
| Chlorpheniramine Maleate . . . . .          | 8 mg    |
| Hyoscyamine Sulfate . . . . .               | 0.19 mg |
| Atropine Sulfate . . . . .                  | 0.04 mg |
| Scopolamine Hydrobromide . . . . .          | 0.01 mg |

Ru-Tuss Tablets act continuously for 10 to 12 hours.

- Vasoconstrictor, antihistaminic actions
- Rapid and prolonged relief of nasal and sinus congestion
- Convenient b.i.d. dosage



Boots Pharmaceuticals, Inc.  
Pioneers in Medicine

# For Coughing With Nasal and Bronchial Congestion



## RU-TUSS EXPECTORANT

Each fluid ounce of Ru-Tuss Expectorant contains:

|                                   |         |
|-----------------------------------|---------|
| Codeine Phosphate                 | 65.8 mg |
| (WARNING: MAY BE HABIT FORMING)   |         |
| Phenylephrine Hydrochloride       | 30 mg   |
| Phenylpropanolamine Hydrochloride | 20 mg   |
| Pheniramine Maleate               | 20 mg   |
| Pyrilamine Maleate                | 20 mg   |
| Ammonium Chloride                 | 200 mg  |
| Alcohol                           | 5%      |

- Vasoconstrictor, antihistaminic, expectorant actions with codeine
- Rapid relief of upper respiratory congestion and cough
- Good tasting

Greenville, Louisiana 71106.

For the Family



# SNEEZE

## RU-TUSS<sup>®</sup> TABLETS

### DESCRIPTION

Each prolonged action tablet contains:

|                                   |         |
|-----------------------------------|---------|
| Phenylephrine Hydrochloride       | 25 mg   |
| Phenylpropanolamine Hydrochloride | 50 mg   |
| Chlorpheniramine Maleate          | 8 mg    |
| Hyoscyamine Sulfate               | 0.19 mg |
| Atropine Sulfate                  | 0.04 mg |
| Scopolamine Hydrobromide          | 0.01 mg |

Ru-Tuss Tablets act continuously for 10 to 12 hours

Ru-Tuss Tablets are an oral antihistaminic, nasal decongestant and anti-secretory preparation

**INDICATIONS AND USAGE** Ru-Tuss Tablets provide relief of the symptoms resulting from irritation of sinus, nasal and upper respiratory tract tissues. Phenylephrine and phenylpropanolamine combine to exert a vasoconstrictive and decongestive action while chlorpheniramine maleate decreases the symptoms of watering eyes, post nasal drip and sneezing which may be associated with an allergic-like response. The belladonna alkaloids, hyoscyamine, atropine and scopolamine further augment the anti-secretory activity of Ru-Tuss Tablets

**CONTRAINDICATIONS** Hypersensitivity to antihistamines or sympathomimetics. Ru-Tuss Tablets are contraindicated in children under 12 years of age and in patients with glaucoma, bronchial asthma and women who are pregnant. Concomitant use of MAO inhibitors is contraindicated.

**WARNINGS** Ru-Tuss Tablets may cause drowsiness. Patients should be warned of the possible additive effects caused by taking antihistamines with alcohol, hypnotics, sedatives or tranquilizers.

**PRECAUTIONS** Ru-Tuss Tablets contain belladonna alkaloids, and must be administered with care to those patients with glaucoma, or urinary bladder neck obstruction. Caution should be exercised when Ru-Tuss Tablets are given to patients with hypertension, cardiac or peripheral vascular disease or hyperthyroidism. Patients should avoid driving a motor vehicle or operating dangerous machinery (See Warnings)

**OVERDOSAGE** Since the action of sustained release products may continue for as long as 12 hours, treatment of overdoses directed at reversing the effects of the drug and supporting the patient should be maintained for at least that length of time. Saline cathartics are useful for hastening evacuation of unreleased medication. In children and infants, antihistamine overdosage may produce convulsions and death.

**ADVERSE REACTIONS** Hypersensitivity reactions such as rash, urticaria, leukopenia, agranulocytosis, and thrombocytopenia may occur. Other adverse reactions to Ru-Tuss Tablets may be drowsiness, lassitude, giddiness, dryness of the mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, tachycardia, hypotension/hypertension, faintness, dizziness, tinnitus, headache, incoordination, visual disturbances, mydriasis, xerostomia, blurred vision, anorexia, nausea, vomiting, diarrhea, constipation, epigastric distress, hyperirritability, nervousness, dizziness and insomnia. Large overdoses may cause tachypnea, delirium, fever, stupor, coma and respiratory failure.

**DOSAGE AND ADMINISTRATION** Adults and children over 12 years of age, one tablet morning and evening. Not recommended for children under 12 years of age. Tablets are to be swallowed whole.

### HOW SUPPLIED:

Bottles of 100 Tablets  
Bottles of 500 Tablets

Federal law prohibits dispensing without prescription

NDC 0524-0058-01  
NDC 0524-0058-05

# COUGH

## RU-TUSS<sup>®</sup> EXPECTORANT

### DESCRIPTION

Each fluid ounce of Ru-Tuss Expectorant contains:

|                                        |         |
|----------------------------------------|---------|
| Codeine Phosphate                      | 65.8 mg |
| <b>(WARNING: MAY BE HABIT FORMING)</b> |         |
| Phenylephrine Hydrochloride            | 30 mg   |
| Phenylpropanolamine Hydrochloride      | 20 mg   |
| Pheniramine Maleate                    | 20 mg   |
| Pyrilamine Maleate                     | 20 mg   |
| Ammonium Chloride                      | 200 mg  |
| Alcohol                                | 5%      |

Ru-Tuss Expectorant is an oral antitussive, antihistaminic, nasal decongestant and expectorant preparation.

**INDICATIONS AND USAGE** Ru-Tuss Expectorant is indicated for symptomatic relief of upper respiratory congestion associated with pharyngitis, tracheitis, bronchitis, and allergic rhinitis. Also, for the temporary relief of symptoms associated with hay fever, allergies, nasal congestion and cough due to the common cold.

**CONTRAINDICATIONS** Hypersensitivity to antihistamines. Concomitant use of an anti-hypertensive or antidepressant drug containing a monoamine oxidase inhibitor is contraindicated.

Ru-Tuss Expectorant is contraindicated in patients with glaucoma, bronchial asthma and in women who are pregnant.

**WARNINGS** Ru-Tuss Expectorant contains codeine phosphate, therefore, the patient should be warned of the potential that this drug may be habit forming. Ru-Tuss Expectorant may cause drowsiness. Patients should be warned of the possible additive effect caused by taking antihistamines with alcohol, hypnotics, sedatives and tranquilizers.

**PRECAUTIONS** Patients taking Ru-Tuss Expectorant should avoid driving a motor vehicle or operating dangerous machinery (See Warnings). Caution should be taken with patients having hypertension, diabetes, hyperthyroidism and cardiovascular disease.

Caution should also be used in patients with pulmonary, hepatic or renal insufficiency. **ADVERSE REACTIONS** Ru-Tuss Expectorant may cause drowsiness, lassitude, giddiness, dryness of mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, tachycardia, hypotension/hypertension, faintness, dizziness, tinnitus, headache, incoordination, visual disturbances, mydriasis, xerostomia, blurred vision, anorexia, nausea, vomiting, diarrhea, constipation, epigastric distress, hyperirritability, nervousness and insomnia. Overdoses may cause restlessness, excitation, delirium, tremors, euphoria, metabolic acidosis, stupor, tachycardia and even convulsions.

**DOSAGE AND ADMINISTRATION** Adults: 1 or 2 teaspoonfuls, orally, every 4 hours, not to exceed 10 teaspoonfuls in any 24-hour period.

Children 6 to 12 years of age: ½ the adult dose, not to exceed 6 teaspoonfuls in any 24-hour period. Children 2 to 6 years of age: ½ teaspoonful every 4 hours, not to exceed 3 teaspoonfuls in any 24-hour period. Children under 2 years of age: Use as directed by a physician.

### HOW SUPPLIED

Pint bottles (16 fl. oz.)

Federal law prohibits dispensing without prescription

NDC 0524-1010-16

### DISTRIBUTED BY:

Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

### MANUFACTURED BY:

Vitarine Company, Inc.  
Springfield Gardens, New York 11413



Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

Pioneers in Medicine For the Family

SPECIFY  
**ZYLOPRIM<sup>®</sup>**  
(allopurinol)  
THE  
ORIGINAL  
ALLOPURINOL



Two convenient dosage forms:  
100 mg (white) and 300 mg (peach)  
Scored Tablets



Tablets imprinted with brand name to  
assist in tablet identification.



Burroughs Wellcome Co.  
Research Triangle Park  
North Carolina 27709



# Partnership with Arizona medicine for one quarter century!



For 25 years, Camelback Hospitals have maintained a working partnership with Arizona's medical profession in offering eminent psychiatric facilities for the care and treatment of emotionally and mentally ill patients.

## **Services doctors understand & appreciate**

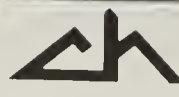
As non-profit community facilities, Camelback Hospitals offer psychiatric services unavailable at most institutions:

- Totally separate programs for adults, young adults, adolescents and older adults.
- Intensive diagnostic and short-term treatment for all age groups.
- Progressive approaches to the treatment of alcohol and drug abuse.
- A special Activity Center with art, music, dance, recreation, occupational therapy and personal effectiveness programs.
- Individual, group and family therapy with special psychodrama sessions.
- Day Treatment Program.

## **A pleasant, different kind of atmosphere**

Patients enjoy bright, sunny buildings, designed for psychiatric treatment and rehabilitation. Special emphasis is placed on providing each patient with a more complete understanding of himself, so that he can participate in his therapy with insight and intelligence.



 **Camelback Hospitals**

Scottsdale Camelback Hospital  
7575 E. Earll Drive  
Scottsdale, AZ 85251  
(602) 941-1108

Phoenix Camelback Hospital  
5055 N. 34th Street  
Phoenix, AZ 85018  
(602) 955-6200

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully bound books. Choose from 30 different colors of durable Library Buckram

\$14.00 per volume, (name imprint.75)

\$15.50 Imitation Leather, (rules .25 each)

Inquire about quantity discounts.

Free local pickup and delivery on 10 volumes or more

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338

## YOU WORKED HARD



FOR THAT  
DIPLOMA..

why not have it  
laminated?

it will last a lifetime....

## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.  
7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

# The NME "establish your practice" benefits package:

- \*Over 60 well equipped acute care hospitals.
- \*Selected financial assistance.
- \*Management consulting.
- \*An array of professional service skills and talents to assist you.
- \*Locations from coast to coast.

If you're a Primary Care Physician, call for yours today.

For further information, contact:  
Raymond C. Prulitt, Director Physician Relations  
National Medical Enterprises  
11620 Wilshire Blvd., Los Angeles, California 90025.  
Call Toll-Free 800-421-7470  
or collect (213) 479-5526.

**NATIONAL MEDICAL  
ENTERPRISES, INC.**



"The Total Health Care Company."  
An Equal Opportunity Employer M/F



# HOW OLD ARE YOU?

In recent issues we discussed the advantages of MICA in its tail coverage cost for doctors moving out of Arizona and the automatic tail coverage without any additional charge in cases of death, disability or retirement.

The automatic - no cost - tail coverage on retirement at age 65 has proven such a desirable feature that other companies are beginning to attempt to copy this feature - but with time qualifications. MICA has no limitations or qualifications if you retire at age 65 - you have the automatic "tail" coverage. No charge. No small print limitations.

This automatic "tail" coverage therefore offers the physician who retires at age 65 and over, the security of converting the policy to a status whereby protection is provided for incidents which occurred during the policy period but are not reported until after that policy period has ended.

**For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402**

MICA MICA MICA MICA MICA

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association

# Rx. FOR A PROFITABLE PRACTICE

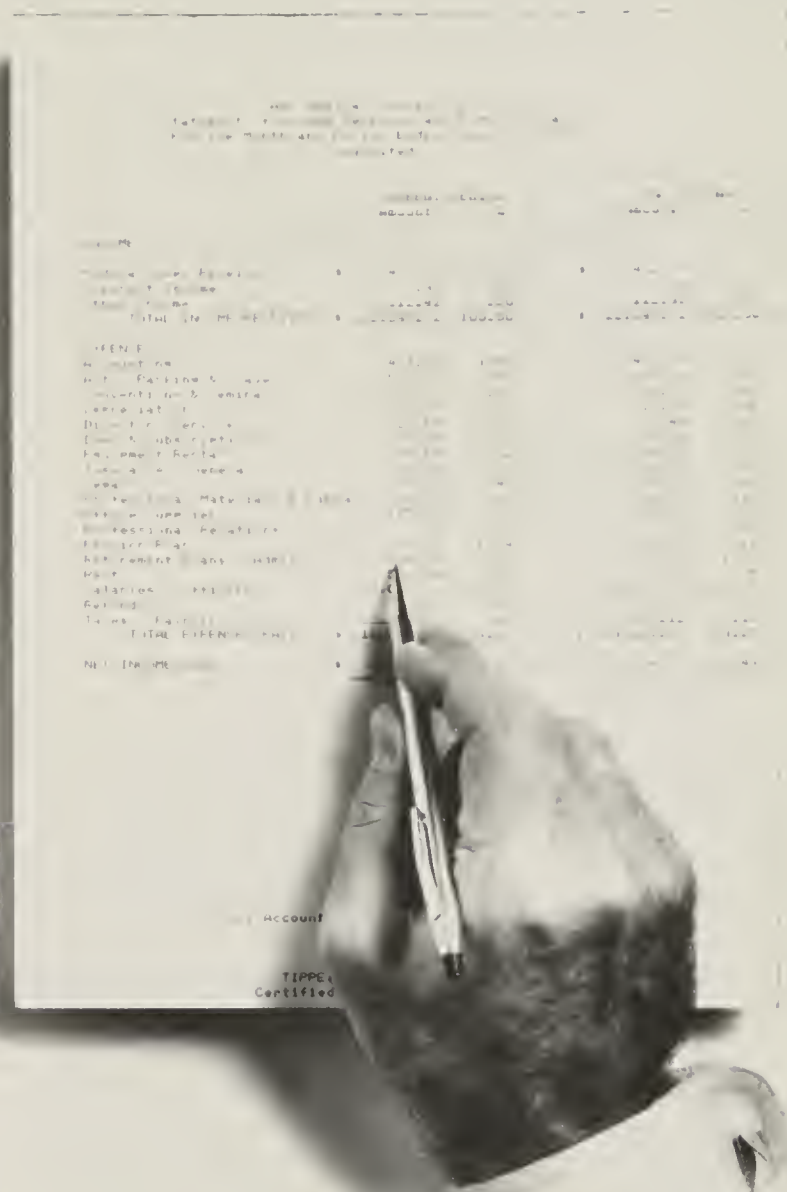
## Unsettled financial atmosphere heightens importance of management

In today's volatile financial climate with new tax laws, effective management of your practice is more important than ever.

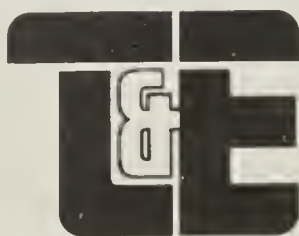
Your degree of success may hinge upon how your accounting is set up and upon the data it gives you.

Tippets & Echols, P.C. specializes in providing professionals with the information needed for proper management. We can show you how to operate more efficiently, how to set up your records system for orderly retention and prompt retrieval, and how to secure a higher percentage of collections faster.

Efficiency, effective records and adequate cash flow — all are part of a prescription for success.



Interested? Just drop us a brief note or call **248-0277** for an appointment. We'd be pleased to discuss how your practice might be improved where it counts — on the bottom line.



**TIPPETS & ECHOLS, P.C.**

Certified Public Accountants

219 E. Lexington • Phoenix • Arizona 85012 • Phone: (602) 248-0277

Accounting for the Future





# Mitral Valve Prolapse

## The Internists Dilemma

John W. Fitzgerald, M.D.  
Ira B. Ehrlich, M.D.

Editor:  
Kenneth B. Desser, M.D.

Perhaps no cardiac problem presents the internist with greater difficulties in diagnosis, management, and counseling than mitral valve prolapse. Patients describe nonspecific complaints, display protean manifestations on physical examination, may have no pathognomonic findings on available laboratory evaluation, and not infrequently have apparent psychoneurotic overlays further exacerbating the problems of diagnosis and management. Compounding the difficulties these patients provide in arriving at a firm diagnosis, there generally remains a disquieting uncertainty in the physician's mind as to the precise causal relationship between symptoms and the presumed underlying etiology. When the diagnosis is made, then the issues of prognosis and management must be addressed: should antibiotic prophylaxis before dental or surgical procedures be routinely employed, what is the role of antiarrhythmic therapy, are there significant implications regarding the prognosis which the patient should be informed of, and should concern be raised as to embolic events? Underscoring these latter problems is the relatively uncritical information appearing in the lay press that the primary physician must be competent to place into perspective for the patient.

Precise figures on the incidence of presenting symptoms are difficult to obtain. Studies published from major referral centers include a large proportion of patients with disabling symptoms, most frequently severe chest pain. Somewhat balancing the high incidence of symptoms in these investigations are a number of studies involving unselected relatively asymptomatic populations. Chest pain is one of the most

frequent symptoms, occurring in up to 60% of patients.<sup>1,2</sup> Pain tends to occur following rather than during exercise, apparently more related to fatigue than to acute increases in myocardial work.<sup>3</sup> Rarely, it may mimic classic angina pectoris, crescendo angina, or pericarditis.<sup>3</sup> The pathogenesis remains entirely conjectural at present. Dyspnea and fatigue are included in the presenting complaints in approximately 60%.<sup>1,4,5</sup> There is essentially no correlation between these latter symptoms and exercise tolerance or degree of mitral regurgitation. Lightheadedness, dizziness and syncope occur in approximately 30% of patients. Although generally presumed to be secondary to arrhythmias, the correlation of these symptoms with arrhythmias is poor.<sup>6</sup> The necessity for evaluating such symptoms is important given the reported increased incidence of sudden cardiac death in patients with syncope.<sup>7</sup> Irrespective of this fact, it must be noted that syncope has been clearly documented in the absence of any arrhythmias.<sup>6</sup> Palpitations present similar difficulties in evaluation. Although arrhythmias occur in approximately 40% of patients, long term EKG monitoring clearly demonstrates a major dissociation between such symptoms and arrhythmias.<sup>6</sup> There is no clear relationship between severity of prolapse, degree of regurgitation, auscultatory findings, or electrocardiographic abnormalities and arrhythmias.<sup>8</sup> Psychoneurotic manifestations are reported in approximately 20% of patients. These range from frank psychosis to personality disorders and a variety of neuroses.<sup>3,5,9</sup> These manifestations often precede the diagnosis of mitral valve prolapse and are thus difficult to merely ascribe to a reactive response following the recognition of mitral valve prolapse by the physician.

Auscultatory features are regarded as the key element in diagnosis, however, the variety and transient nature of these findings are not commonly recognized. These auscultatory hallmarks have been summarized in multiple studies.<sup>1,2,10</sup> The single most common finding is an isolated mid to late systolic click, occurring in 53% of patients. The classically described combination of a mid systolic click with a late systolic murmur occurs in only 17%. Indeed, this incidence is equaled by the number of patients who have no abnormal auscultatory findings but are confirmed as having mitral valve prolapse by echocardiography. A pansystolic murmur is present in approximately 9%. Less frequent findings are an isolated late systolic murmur in 2%, precordial honk in 1%, and early systolic and/or multiple systolic clicks in 1%. The relatively high incidence of "silent" mitral valve prolapse suggests the necessity of pursuing other diagnostic studies when the syndrome is suggested by the patient's presenting symptoms but not supported by confirmatory findings on auscultation. It is not unlikely that careful subsequent evaluation could reveal positive findings.

The click and murmur change in response to physiological maneuvers that can be easily performed in the physician's office. Auscultation should be performed

in the following positions: supine, left lateral decubitus, standing, and sitting.<sup>10</sup> Additional maneuvers can be performed to alter left ventricular volume. Those interventions resulting in smaller left ventricular volumes such as standing, Valsalva, and amyl nitrate inhalation, tend to move the click and onset of murmur earlier in systole. Conversely, maneuvers increasing the left ventricular volume, such as squatting, isometric handgrip, and passive leg raising, delay the onset of the click and murmur. Such interventions may delay the onset of a previously pansystolic murmur allowing the recognition of the systolic click.

Electrocardiographic abnormalities are frequently encountered in mitral valve prolapse. Abnormalities of ST segments and T waves have been described in 30%-40% of patients.<sup>1,3,9</sup> The most common findings are low amplitude or inverted T waves in the inferior leads. Half of these patients have additional abnormalities in the lateral precordial leads with a smaller subset exhibiting ST-T wave changes in leads V1-V3. QT interval prolongation has been reported with widely varying incidence. Arrhythmias occur in the majority of patients as PVC's are present in 60%-75% of patients with atrial premature beats reported in 35%-67%.<sup>6,8</sup> A variety of supraventricular tachyarrhythmias are reported.<sup>2,9</sup> Bradyarrhythmias are somewhat less common with a total incidence of approximately 30% including severe sinus bradycardia, marked sinus arrhythmia, and sinoatrial arrest.<sup>5,11</sup>

The development of echocardiographic techniques has provided the single most important impetus in increasing the understanding of mitral valve prolapse because large populations could be evaluated by this non-invasive tool for characterization of presenting symptoms, physical findings, and population prognosis. Currently, an echocardiogram is a part of the evaluation for most patients suspected of having mitral valve prolapse. Two predominant patterns are exhibited on the echocardiogram. Both include posterior motion of the mitral leaflets in systole into the left atrium. When the motion is confined to the latter portion of systole the pattern is termed late systolic prolapse. When the motion occurs throughout systole, it is termed pansystolic, holosystolic, or hammock prolapse.<sup>12</sup> The incidence of these patterns are reported to be in the range of 50%-60% for late systolic prolapse and 40%-50% for pansystolic prolapse. There are significant technical problems in the echocardiographic evaluation that are often unappreciated: transducer location and orientation may convert a normal appearing mitral valve to one with late systolic or pansystolic prolapse,<sup>13</sup> the frequency of diagnosis is closely related to technician skill and diligence, and the patient's cardiothoracic ratio may preclude a satisfactory examination. There are clearly sensitivity and specificity problems with echocardiography as there are with any laboratory test. Sensitivity has been reported at 75% to 82%.<sup>13-15</sup> Unfortunately, few data exist to clarify the issue of specificity, but it is apparent that pansystolic prolapse is

a much less specific finding than late systolic prolapse. The diagnosis of mitral valve prolapse must rest on the careful weighing of presenting symptoms, physical findings and laboratory data.

The prognosis of patients with mitral valve prolapse should be evaluated in the light of the general incidence of this entity. If studies in which inappropriate biasing in recruitment of the sample population are excluded, the incidence of mitral valve prolapse appears to be in the range of 5%-10%.<sup>16,17</sup> Given this presumed incidence of mitral valve prolapse in the general population, the case reports of morbidity and mortality must be kept in perspective. Studies from major referral centers must be interpreted with the knowledge that their statistics are heavily prejudiced by the nature of referral itself: the patients with severe disease and attendant management problems, are precisely those patients sent to referral centers from the community at large.

The major complications of mitral valve prolapse are progressive mitral regurgitation, bacterial endocarditis, chordal rupture, malignant ventricular arrhythmias, sudden cardiac death, and cerebral embolic events. In a series of retrospective studies from referral centers with at least a ten year follow-up, progressive mitral regurgitation occurred in 10%, endocarditis in 8%, ruptured chordae in 4%, and sudden cardiac death in 2%.<sup>18,19</sup> Cerebral embolic events were not noted in either of these reports although there are several studies of cerebral vascular accidents in the literature reporting a higher incidence of mitral valve prolapse in younger patients.<sup>20,21</sup> Progressive mitral regurgitation is a rare event in the absence of endocarditis or ruptured chordae.<sup>9</sup> Both endocarditis or ruptured chordae are rare in patients with isolated systolic clicks or silent mitral valve prolapse. Antibiotic prophylaxis is recommended before procedures that may result in transient bacteremia;<sup>19</sup> however, many would qualify this recommendation to exclude those patients with isolated clicks or silent prolapse.<sup>22</sup> Sudden cardiac death is the most dreaded complication of mitral valve prolapse. Although case reporting in the literature significantly underestimates the incidence of this complication, to 1979 there were only 25 cases of sudden cardiac death reported. The composite clinical picture of these patients is as follows: 40-year-old female, history of syncopal events, late systole murmur with mid systolic click or pansystolic murmur, ST-T wave abnormalities in the inferolateral leads, ventricular arrhythmias, and moderate mitral regurgitation.<sup>22</sup> There have been several reports of sudden death in young relatives of probands in familial studies of mitral valve prolapse. It is possible that familial forms of mitral valve prolapse carry a higher risk of sudden death.

The issue of the necessity for antiarrhythmic therapy defies simple recommendations. Arrhythmias are common yet significant sequelae from these arrhythmias are rare. Conversely, side effects from any antiarrhythmic regimen are to be expected. In the symptomatic patient, the most useful tool for evaluating



the relationship between symptoms and arrhythmias is the Holter monitor.<sup>23</sup> There may be a major dissociation between reported symptoms and arrhythmias and should this be the case then there would be little to support the institution of antiarrhythmic agents. Propranolol is held to be the initial drug of choice for a variety of arrhythmias in symptomatic patients.<sup>23,24</sup> Approximately 50% of patients have a significant reduction in both ventricular and supraventricular arrhythmias.<sup>23</sup> Propranolol appears to be somewhat less well tolerated in mitral valve prolapse patients than in other populations. In one small series, 20% of patients were worse, 40% showed no change, and 40% were improved following the institution of propranolol.<sup>23</sup> A variety of other antiarrhythmic drugs have been utilized including quinidine,<sup>25</sup> procainamide,<sup>25</sup> disopyramide,<sup>26</sup> and diphenylhydantoin.<sup>9</sup> Caution has been urged in the use of membrane active agents that prolong the Q-T interval as patients with preexisting Q-T prolongation may be at increased risk for sudden cardiac death.<sup>19</sup> Symptomatic bradyarrhythmias may require permanent pacemakers. The decision to treat arrhythmias should be based on documented arrhythmia symptom complexes. The result of drug therapy should likewise be similarly verified. The necessity for therapy must be tempered by the knowledge that in this relatively young population, prolonged antiarrhythmic therapy carries significant implications with regard to drug toxicity.

### Conclusions

Patients with mitral valve prolapse present with symptoms including chest pain, dyspnea, fatigue, lightheadness, syncope, palpitations, and psychoneurotic manifestations; or conversely they may be entirely asymptomatic. Physical examination must be carefully performed in multiple postures to adequately evaluate the patient. The examination may disclose isolated systolic clicks, clicks and late systolic murmurs, pansystolic murmurs, or it may be entirely normal. Non-specific ST-T wave abnormalities are frequently present in the inferolateral leads on the resting EKG. A variety of ventricular and supraventricular arrhythmias can be demonstrated on the resting EKG or Holter monitor. The cornerstone in the diagnosis of prolapse is the echocardiogram although there are clearly problems with the sensitivity and specificity of this test. Given the prevalence of mitral valve prolapse in the general population, the prognosis is, in general, quite benign but endocarditis, ruptured chordae, progressive mitral regurgitation, cerebral embolic events, and sudden cardiac death are well recognized complications. Prognosis in patients with an isolated systolic click or silent mitral valve prolapse appears to be much more favorable than in those patients with systolic murmurs and clicks. Those patients with previous syncopal events or a family history of sudden cardiac death deserve more aggressive evaluation and management. Mitral valve prolapse provides the internist with a major challenge to his skills in diagnosis, management, and counseling.

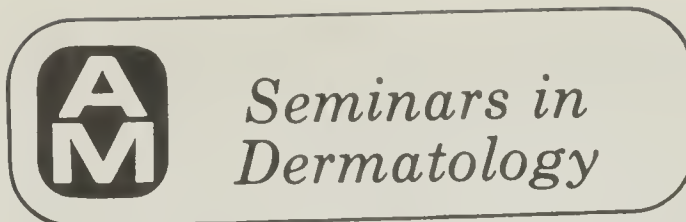
### References

1. Barlow JB, Bosman CK, Pocock WA, et al: Late systolic murmurs and non-ejection (mid-late) systolic clicks: An analysis of 90 patients. *Br Heart J* 30:203, 1968.
2. Devereux RB, Perloff JK, Reichek N, et al: Mitral valve prolapse. *Circulation* 54:3, 1976.
3. Jerasaty RM: Mitral valve prolapse-click syndrome. *Prog Cardiovasc Dis* 15:623, 1973.
4. Cohn IH, Hultren HN, Angell WW, et al: Prolapsing mitral valve with mucinous degeneration. *West J Med* 118:43, 1973.
5. Hancock EW, Cohn K: The syndrome associated with midsystolic click and late systolic murmur. *Am J Med* 41:183, 1966.
6. Winkle RA, Lopes MG, Fitzgerald JW, et al: Arrhythmias in patients with mitral valve prolapse. *Circulation* 52:73, 1975.
7. Wigle EG, Radowski H, Ranganathan N, et al: Mitral valve prolapse. *Ann Rev Med* 27:165, 1976.
8. DeMaria AN, Amsterdam EA, Vismara LA, et al: The mitral valve prolapse syndrome. *Ann Intern Med* 84:656, 1976.
9. Barlow JB, Pocock WA: The problem of nonjection systolic clicks and associated mitral systolic murmurs: Emphasis on the billowing mitral leaflet syndrome. *Am Heart J* 90:636, 1975.
10. Fontana ME, Pence HL, Leighton RF, et al: The varying clinical spectrum of the systolic click-late systolic murmur syndrome. *Circulation* 41:807, 1970.
11. Leichtman D, Nelson R, Gobel FL, et al: Bradycardia with mitral valve prolapse. *Ann Intern Med* 85:453, 1976.
12. Popp RL, Brown OR, Silverman JF, et al: Echocardiographic abnormalities in the mitral valve prolapse syndrome. *Circulation* 49:428, 1974.
13. Markiewicz W, Stoner J, London E, et al: Mitral valve prolapse in one hundred presumably healthy young females. *Circulation* 53:64, 1976.
14. DeMaria AN, Neumann A, Lee G, et al: Echocardiographic identification of the mitral valve prolapse syndrome. *Am J Med* 62:819, 1977.
15. Malcolm AD, Bonghaner DR, Kostuk WJ, et al: Clinical features and investigative findings in the presence of mitral leaflet prolapse: Study of 85 consecutive patients. *Br Heart J* 38:244, 1976.
16. Bloch A, Vignola PA, Walker H, et al: Echocardiographic spectrum of posterior systolic motion of the mitral valve in the general population. *J C U* 5:243, 1977.
17. Procacci PM, Savran SV, Schreiter SL, et al: Prevalence of Clinical mitral-valve prolapse in 1169 young women. *New Eng J Med* 294:1086, 1976.
18. Allen H, Harris A, Leatham A: Significance and prognosis of an isolated late systolic murmur; A 9- to 22-year follow-up. *Br Heart J* 36:525, 1974.
19. Mills P, Rose J, Hollingsworth BA, et al: Long-term prognosis of mitral-valve prolapse. *New Engl J Med* 297:13, 1977.
20. Kostuk WJ, Barnett HJM, Silver MD: Strokes A: A complication of mitral-leaflet prolapse? *Lancet* i:313, 1977.
21. Barnett HJ, Jones MW, Boughner DR, et al: Cerebral ischemic events associated with prolapsing mitral valve. *Arch Neurol* 33:777, 1976.
22. Jerasaty RM: Mitral Valve Prolapse: New York, Raven Press, 1979.
23. Winkle RA, Lopes MG, Goodman DJ, et al: Propranolol for patients with mitral valve prolapse. *Am Heart J* 93:422, 1977.
24. O'Rourke RA, Crawford MH: The systolic click-murmur syndrome: Clinical recognition and management. *Curr Prob Cardiol* 1:1, 1976.
25. Devereux RB, Perloff JK, Reichek N, et al: Mitral valve prolapse. *Circulation* 54:3, 1976.
26. Lown B, Graboyes TB: Management of patients with malignant ventricular arrhythmias. *Am J Cardiol* 39:910, 1977.

Kenneth B. Desser, M.D.

Midsystolic clicks have experienced an unusual historical odyssey. After their original description these sounds were ascribed to extracardiac sources or adhesions secondary to healed pericarditis. Some twenty years ago a resurgence of investigational inquiry occurred in order to designate their importance. It is now recognized that these acoustic transients may be associated with mitral valve prolapse, tricuspid valve prolapse, hypertrophic obstructive cardiomyopathy, ischemic heart disease, rheumatic heart disease, atrial septal defect, ventricular aneurysm, left-sided pneumothorax, aortic dissection, right ventricular endocardial pacemakers and a host of other conditions. The excellent review by Doctors Fitzgerald and Ehrlich mentions thromboembolic phenomena in the setting of mitral valve prolapse. Retinal vascular accidents were first described in such patients from the Phoenix area and reference to this association is made in virtually all subsequent papers on the subject. The inevitable chance occurrence marriage of men and women with floppy mitral valves and the non-consanguineous union of affected subjects producing progeny with widespread mitral valve prolapse has been investigated and the manuscript is currently in press. In one family there were two successive generations of offspring who mated with others afflicted with this disorder. Mitral valve clicks are frequently ephemeral and their disappearance or reappearance on the scene can produce some embarrassment to the patient or physician. In one such instance a young women with atypical chest pain and palpitations was examined by an internist and two cardiologists who did not appreciate any abnormality. Subsequently, one of the cardiologists was informed by the patient's gynecologist that an unusual clicking noise was heard during systole. Regardless of other expert opinion it is suggested that patients be told if they have a non-ejection systolic click. There are at least two reasons for such communication aside from the physicians ethical obligation: 1) geographical mobility in this era frequently results in subsequent examination by another physician who may be misled in an acute setting and 2) we do not know the ultimate fate of patients with these clicks; pooled prospective information will ultimately provide the answer. On the other hand it might be prudent to inform symptomatic patients with "silent" prolapse that a click might be heard sometime in the future.

*\*Supported by the Biomedical Research Memorial Fund, Inc.*



## Ingrowing Toenails Fact or Fancy

(*Unguis incarnatus*; Onychocryptosis)

Martin Snyder, DPM, AACFS  
Ronald Hansen, M.D.

### Editors:

Ronald C. Hansen, M.D.  
Robert A. Schwartz, M.D.

### Abstract

Many patients present to their physician, painful great toes which they refer to as "ingrowing toenails." Whether the nail plate has actually penetrated the pulp of the toe is unimportant to the patient because the condition is painful and very often quite disabling. However, accurate terminology in describing the patient's condition is important since treatment must depend upon actual pathology. Certain objective features, including the unequivocal signs of infection, must be present in a true ingrowing toenail.

This paper will address itself to a variety of etiological factors other than a true ingrowing toenail that may cause pain in the great toes. Differential diagnoses will be presented and an overview in the form of an easily followed flowchart will be presented to assist in deciding upon the proper treatment regimen for various painful great toes.

Inversion and hypertrophy of the nail plate, together with excess keratinization of the nail sulci, accounts for a great majority of the painful great toes that bring patients to physicians' offices. These may be thick toenails (onychauxis), severely curved or deformed nails

From: University of Arizona Health Sciences Center, and Veterans Administration Medical Center, Tucson, Arizona. Dr. Snyder is Staff Podiatrist, Surgical Service, VA Medical Center. Reprint requests to Martin Snyder, DPM, AACFS, Surgical Service - 112, Veterans Administration Medical Center, Tucson, Arizona 85723.





Figure 1

Patient with involuted toenail and subungual debris has trimmed the distal lateral corner to relieve pressure at that point. Note, however, that as the nail plate progresses distally, there will be marked impingement against the nail pulp. Also, note there is no infection present.

(onychogryphosis), excessive callus in the nail groove (onychophosis), or mycotic nails (onychomycosis). Another common and frequently overlooked factor that causes nail pain is the very low or sloping toebox of shoes, especially in women's dress shoes. Yet another is the position of the hallux itself. If the toe is hyperextended or elevated due to some intrinsic ailment, such as arthritis or neuromuscular imbalance creating an excessive pull of the extensor hallucis longus muscle, we find the great toe is pushing against the top of the shoe box, causing a gradual wearing of the shoe lining. Often, the painful hallux may be the result of poor hygiene and improper nail cutting. Trimming the corners of the nail plate may cause pressure to develop along the distal portion of the nail pulp. (Figure 1) Subungual exostosis and glomus tumors are not common causes of great toe pain, but should not be excluded from a differential diagnosis. Nail conditions due to Reiter's disease, psoriasis, exczema, occupational disease, ingestion of medications and familial causes such as pachyonychia congenita also must not be overlooked. Any of the above factors alone or in combination may be the true etiological factor that creates painful great toes with no actual penetration of the nail into the flesh.

The physician may readily determine the cause of pain by careful observation and palpation. If the cardinal signs of infection are present, and if the greatest distress is produced by direct pressure (gently applied) against the tip of the toe, then there is actual penetration of the nail plate into the pulp of the toe, and the correct diagnosis is ingrowing toenail. Pressure on the top or sides of the nail may also create some pain, but the greatest discomfort should be at the tip of the toe, where the nail plate has entered the flesh.

If pressure on the top of the toe nail plate causes the most pain, then the cause may be one of many, and include such diverse components as inversion of the nail



Figure 2

This patient presented with pain in the distal medial margin of the great toe. There is heavy callus present in the nail sulcus as well as a mycotic infection present. The thickened nail plate with the subungual debris and heavy hyperkeratotic tissue in the nail groove created distress on dorsal pressure; no infection present.

plate, subungual exostosis, or excessive callus in the nail groove. While there may be discomfort, the usual signs of infection are not present. (Figure 2) Mycotic or very thick nails may also give rise to pain upon direct nail plate pressure. Lateral pressure against the nail fold may cause pain due to aggressive debridement or careless cleaning of the callus in the nail sulcus. The presence of a foreign body such as a wood splinter or cactus needle could be a causative factor in creating discomfort either by direct pressure on the nail plate itself or by lateral pressure against the nail lip.

An important aspect to great toe pain is shoe fit and pattern. This should be given more than a casual glance. When shoe toes are sharply pointed, as is common in dressy shoes for ladies, a mechanical component to pain is now present. As the shoe stretches and loosens, the toes are gradually forced into the tip of the shoe, creating a significant trauma. Pain, and sometimes anesthesia, may be noted upon lateral pressure of the toe. Low or sloping toeboxes will cause pressure on the top of the toe nail plate and will be reflected in the uneven wearing of the shoe toe box lining. High heeled shoes that create a forward pitch of the body may also be responsible for the squeezing or compression factor that will contribute to the pain syndrome.

In cases of actual penetration of the pulp of the toe, there are many possible culprits. The nail corner may have a spicule or very sharp corner, or it may be sawtoothed or irregular by the action of tearing the nail plate instead of cutting, or a prominent shoulder may be causing excessive pressure that eventually creates a perforation of the nail pulp. Quite often, the truly infected nail that the patient presents will have purulent drainage, a factor that allows for a loosening of the nail



Figure 3

Moderate erythema and pain on distal lateral pressure was the presenting complaint in this patient. Removing the nail corner and permitting adequate drainage of local abscess gave complete relief. Home care consisted of soaks and application of topical antibiotics. Proper nail packing and instructions for correct nail hygiene and care are necessary for avoiding recurrences.



Figure 4

Long standing infection at lateral margin has caused proud flesh and an increase in the lateral nail lip. There is also the beginning of an infection on the medial side. Silver nitrate may reduce the proud flesh when the nail margin is removed, however, the hypertrophied nail lip may require surgical excision.

plate at the point of penetration. Frequently, proud flesh or circumungual granulation tissue exists, a reaction of the tissues to the foreign body that is represented by the impaling nail plate.

Treatment of painful great toes depends on the actual pathology. Obviously, cutting away the nail plate does not help when the pain is due to a heavily calloused nail groove or when shoes are the culprit. Trimming a nail corner of the plate is useless when there is a glomus tumor or if there is a subungual exostosis causing pain. The inclination to remove the nail plate, whether a corner or an entire margin, must be curbed. Treatment should be geared to the reasons for the pain. The physician must be a "looker and a feeler," not only of the toe itself, but of the shoes the patient wears, both to the office when they make their visitation and at home in casual wear.

Frank infection in the average patient without the complications of diabetes or ischemic conditions presents itself as a localized abscess. After careful incision and drainage, oral antibiotics are generally not necessary. Careful removal of the offending nail corner, with or without local anesthesia, will generally suffice to provide complete and immediate comfort. (Figure 3) Tepid saline soaks or Burrow's solution followed by topical antibiotic medications may be a well advised home treatment.

When proud flesh is present, silver nitrate ( $\text{AgNO}_3$ ) may be used to shrink the tissue. On rare occasions when the proud flesh has organized and the nail lip has

become enlarged, definitive surgery is indicated. (Figure 4) If the nail plate is severely involuted and a history of recurrent, chronic infection is present, then the treatment of choice is excision of part or all of the nail plate and destruction of the matrix cells by any of the several means available.

When infection is not present, the varieties of etiology must be treated according to the pathology. Calloused nail grooves may be softened by warm, soapy soaks for about ten minutes. Softening of the hyperkeratotic tissue permits easy and painless removal.

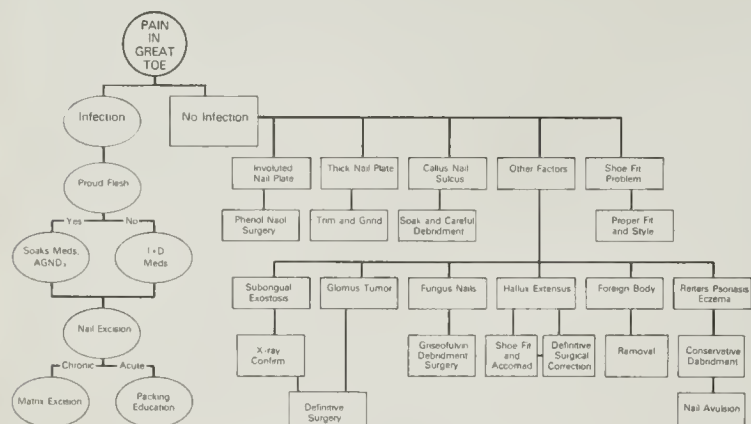
A glomus tumor under the nail plate is a small purplish discreet lesion, usually very small and causing much pain on direct and gentle pressure at that point.

Mycotic nails may be avulsed or treated in a more conservative manner either with griseofulvin orally or by debridement by the podiatrist using either a steel burr or rasp.

Thick and irregular toenails resulting from trauma to the matrix, whether mechanical or thermal, may also be treated by surgical avulsion or careful cutting and grinding of the nail plate. When the cause of the nail plate pain is related to some systemic condition, then definitive diagnosis dictates the proper treatment.

Shoes can and will be a problem to many women, especially the young, well groomed individual who seeks the latest fashion without regard to proper shoe fit. Shoe advice is very important, and should best be left to the podiatrist or the honest shoe fitter, that most rare of animals. In any case, when surgery is required, as in the





### Flow Chart

This is designed to present an overview of the majority of causes and treatments for painful great toes, whether there is infection present or not.

case of a glomus tumor or subungual exostosis, the general or podiatric surgeon should be consulted.

The accompanying flow chart is an overview of the majority of causes for great toe pain. Naturally, some of the more exotic and genetic factors have been omitted since they constitute a very small percentage of the cases presented. The treatments and various therapies are listed as a guide for the general physician. The more knowledgeable and informed one may be with respect to the treatments of painful great toenails, the earlier proper and more defined care can be provided.

### Summary

Pain in the great toe has many varied causes. In many cases, the several components of nail plate, callus tissue, infection and improper hygiene combine to create the

distress that brings patients to physicians' offices. When no frank infection is present, many of the other possible etiologies must be considered and treated accordingly. Succinctly stated, correct diagnosis is essential for correct therapy.

Education is a vital factor in the treatment of painful great toes. In the average patient with a nail complaint that is caused by improper nail hygiene or trimming, a simple sketch with plain language instructions is most helpful. Particular attention must be given to the trimming back of nail corners since, in the great majority of cases, these represent the bulk of the causes of true ingrowing toenails.

### Acknowledgements:

We would like to express our thanks to the Medical Media Production Service of the Tucson Veterans Administration Medical Center. We are grateful to Gwyneth J. Roske for her contribution of skillful and artistic talents.

### References

1. De Nicola P, Morisani M, Zavagli G: Nail Disease in Internal Medicine. C. C. Thomas, Springfield, IL, 1974.
2. Du Vries HL: Surgery of the Foot. 4th Edition. R. A. Mann (ed), C.V. Mosby, St. Louis, Mo., 1977.
3. Giannestras N: Foot Disorders, Medical and Surgical Management. Lea and Febiger, Philadelphia, Penn., 1967.
4. Katz W: Rheumatic Diseases, Diagnosis and Management. J.B. Lippincott, Philadelphia, Pa., 1977.
5. Mason M, Curry HLF: Clinical Rheumatology. J.B. Lippincott, Philadelphia, Pa., 1970.
6. Pardo-Costello A: Diseases of the Nails. Charles C. Thomas, Springfield, IL, 1960.
7. Samitz MH, Dana AS: Cutaneous Lesions of the Lower Extremities. J.B. Lippincott, Philadelphia and Toronto, 1971.
8. Samman PD: The Nails in Disease. William Heineman, Medical Book Publishers.
9. Weinstein F: Principles and Practice of Podiatry. Lea and Febiger, Philadelphia, Pa., 1968.
10. Yale I: Podiatric Medicine. William and Wilkins, Baltimore and London, 1980.



## Pituitary Gland CT

E. T. Clark, M.D.

Editor:  
Stephen E. Dippe, M.D.

Previous reports in the literature have stated that CT is of no value in demonstrating microadenomas and limited value for larger adenomas of the pituitary gland. However, this statement is no longer true with the recent advent of high resolution CT scanners capable of thin sections (1-2mm) in the coronal plane.

The purpose of this report is to summarize the first 12 months of pituitary CT scanning at the Flagstaff Hospital and Medical Center of Northern Arizona. Prior to presenting the pathologic conditions detected by CT scanning, it is necessary to define the normal appearance of the pituitary gland on CT. All scans were performed on a General Electric CT/T8800 scanner with prior selection of the appropriate location of the CT sections by a digital computerized radiograph (Scoutview). (Figure 1). It would be quite difficult, if not impossible, to perform pituitary CT without prior Scoutview localization. All patients were scanned during the IV infusion of iodinated contrast material to produce contrast enhancement of the pituitary gland and surrounding vascular structures.

The CT scan is used to define two important features of the pituitary gland, namely, shape and height. The normal shaped pituitary gland has a concave downward superior margin. (Figure 2). An abnormal pituitary containing an adenoma has a convex upward superior margin. (Figure 3). The normal pituitary has a maximum vertical height of 5mm in the male and 7mm in the female.

From: Flagstaff Hospital and Medical Center of Northern Arizona, Department of Radiology, 1215 North Beaver Street, Flagstaff, Arizona 86001

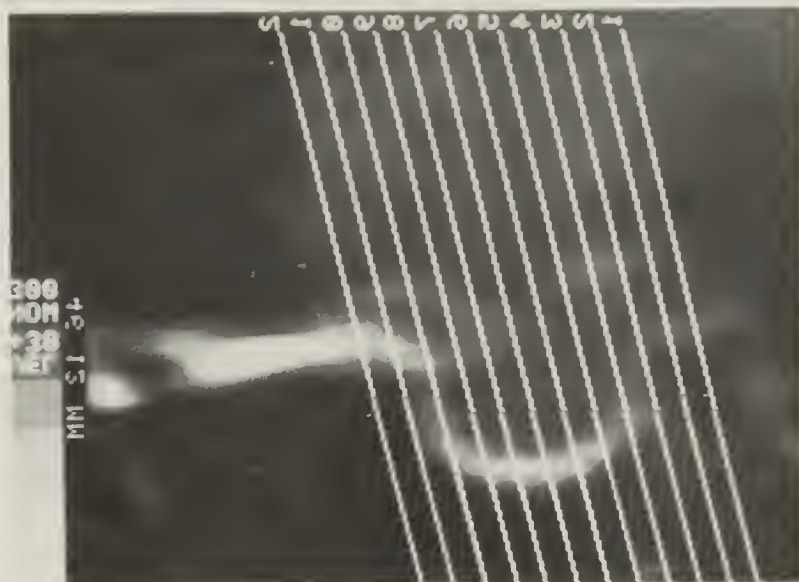


Figure 1

The location of contiguous 1.5mm coronal CT sections superimposed on a lateral view of the sella turcica obtained by computerized digital radiography.



Figure 2

Coronal CT section of the normal pituitary. The blackest area represents air in the sphenoid sinus. The pituitary gland is superior to the sphenoid sinus. Note the normal concave downward superior margin of the pituitary. The dark area superior to the pituitary represents CSF in the suprasellar cistern. The internal carotid, middle cerebral, and anterior cerebral arteries (white branching structures) are well seen.

From February 1980 through January 1981, eight patients were found to have pituitary adenomas by these criteria on the CT scan. Six of the patients were females (ages 19-32) who presented with galactorea and amenorrhea (one of these had amenorrhea only). Four of the six females had significantly elevated serum prolactin levels while the other two had borderline elevated prolactin levels. In five of these women the pituitary microadenoma could actually be visualized as a low density rounded area surrounded by normally contrast enhancing pituitary tissue. This has been previously reported.<sup>2</sup>



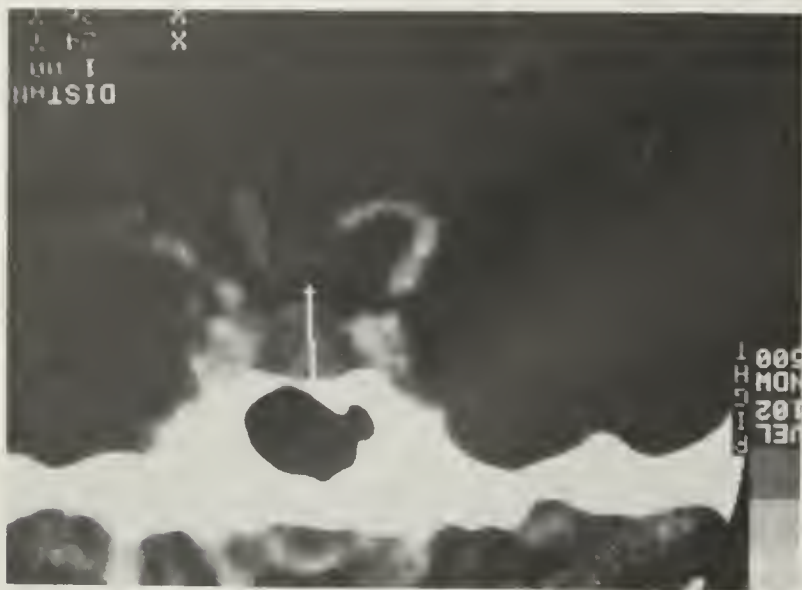


Figure 3

Pituitary microadenoma. The arrow tip is located in the CSF containing suprasellar cistern. The cross on the white cursor line marks the superior margin of the abnormally convex upward pituitary gland. The vertical height of this pituitary measures 10mm (upper limits of normal in a female is 7mm).

The other two patients were male (age 44 and 63) who presented with panhypopituitarism. Both of these males had adenomas significantly larger than the microadenomas (less than 10mm in height) demonstrated in the female patients. The adenomas in the males most likely represent chromophobe adenomas, although histologic confirmation was not obtained. One male patient was treated with radiotherapy and hormonal replacement while the other was treated by hormonal replacement only.

Also, histologic confirmation in the female patients has not been obtained since five of the six patients are currently being treated medically with Bromocriptine

(Parlodel). The sixth female patient became pregnant and has had no therapy to date, although investigators have noted an alarming increase in size in a pituitary microadenoma in a pregnant patient. Very recently, dramatic decreases in size of pituitary microadenomas in patients treated with Bromocriptine have been demonstrated by CT. In spite of the fact that histologic confirmation has not been obtained, correlation of the CT and clinical findings in the Flagstaff group of patients with the group of microadenoma patients initially reported from the Medical College of Wisconsin (several had histologic confirmation) is strikingly similar.<sup>2</sup>

It should be noted that pituitary enlargement on CT secondary to hypothyroidism has been recently reported.<sup>3</sup> This is presumed to represent pituitary hyperplasia related to excess TSH production. Also, it has very recently been reported that the so-called "empty sella" can be recognized by high resolution, thin section CT scanning.<sup>1</sup>

In summary, CT scanning of the pituitary with a high resolution, thin section CT scanner should be considered the first radiologic procedure for investigating a patient with suspected pituitary adenoma or tumor. Although polytomography and other more invasive neuroradiologic procedures have been the techniques of choice for the radiologic investigation of the pituitary in the past current reports indicate that CT is more sensitive and specific than these other techniques.

#### References

1. Haughton VM, et al: Recognizing the empty sella by CT. *Amer J Neuroradiol* 1:527-529, 1980.
2. Syvertsen A, Haughton VM, et al: The computed tomographic appearance of the normal pituitary gland and pituitary microadenomas. *Radiology* 133:385-391, 1979.
3. Takehiko O, et al: Pituitary hyperplasia due to hypothyroidism. *J Computer Assist Tomography* 4:600-602, 1980.



# Use of Transhepatic Biliary Stents In the Treatment of Obstructive Jaundice

R.A. Kozarek, M.D.  
A. Chinichian, M.D.  
R. A. Sanowski, M.D.  
R. Santos, M.D.

Editors:  
George Burdick, M.D.  
Stephen Glouberman, M.D.  
Steven R. Kanner, M.D.  
Robert Sanowski, M.D.

## Introduction

Although percutaneous transhepatic cholangiography (PTC) is an established modality in delineating the etiology of obstructive jaundice,<sup>1,2</sup> transhepatic biliary drainage has yet to receive universal acceptance or application. Originally described in 1963,<sup>3</sup> external biliary drainage has been used sporadically since that time and almost invariably in the setting of recurrent or inoperable malignancy.<sup>4</sup> Successful internal drainage with placement of a biliary tract stent was, in turn, first reported in 1974.<sup>5</sup> Although usually used in the setting of malignant obstructive jaundice, indications have been expanded to include postoperative bile duct strictures, intrahepatic stones and sclerosing cholangitis in high risk surgical patients.<sup>6,7</sup> This report describes the technique and demonstrates its value with the presentation of a representative case. (Table 1)

Key words: biliary stents, obstructive jaundice

From: Phoenix Veterans Administration Medical Center, Departments of Medicine and Radiology, Seventh Street and Indian School Road, Phoenix, Arizona 85012. Reprint requests to R. A. Kozarek, M.D., Assistant Chief Gastroenterology, VA Medical Center, Seventh Street and Indian School Road, Phoenix, Arizona 85012.

## STENT INDICATIONS

1. Symptomatic obstructive jaundice in high risk patient or patient with unresectable malignancy
  - pancreas
  - biliary tree
  - porta hepatis metastasis
2. Non-malignant obstructive jaundice in poor risk surgical candidate
  - sclerosing cholangitis
  - post-operative stricture

## Methods

A lateral approach to the liver is used for both diagnostic PTC and biliary drainage. After coverage with broad spectrum antibiotics and premedication with intravenous demerol, transhepatic cholangiography is undertaken as previously described<sup>2</sup> to delineate the anatomy of the biliary tree. Thereafter an 18 gauge, sheathed needle (Figure 1) is passed into a dilated right hepatic duct under fluoroscopic control. This needle is subsequently removed and a stiffened, shapeable guide wire is passed through the sheath and beyond the level of obstruction. The sheath is then removed and a modified 8 Fr pigtail catheter with multiple side holes (Cook Catheter Co., Bloomington, Indiana 47401) is advanced over the guide wire. After passing the obstruction, the catheter is further advanced into the duodenum or distal common bile duct (Figure 2). If properly situated, multiple side holes will be present on either side of the obstruction, thereby allowing decompression of the biliary tree. After suturing the catheter to the skin, proper position and function are assured by visualization of both the duodenum and intrahepatic ducts with injection of contrast material. The catheter is thereafter maintained with twice-daily irrigations of sterile saline and the patient can usually be discharged within 3 to 5 days after placement.

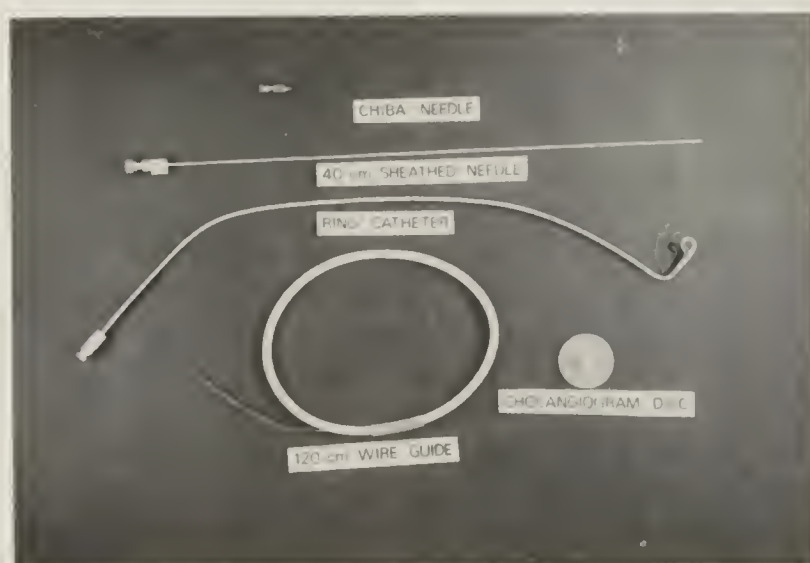


**Figure 1**  
Chiba needle and internal biliary drainage (Ring) catheter. The cholangiogram disc is used to stabilize the catheter at the skin site. See text for details.





Figure 2

Transhepatic biliary stent passed into common bile duct obstructed by porta hepatis metastases. Upper arrow denotes hepatic capsule, lower arrow proper prosthesis placement within the lumen of the duodenum.



Figure 3

Retrograde pancreaticholangiogram delineating complete obstruction of the common bile duct at the level of the porta hepatis (solid arrow). Open arrows depict the course of the pancreatic duct.

### Case Report

An 84-year-old white male was initially evaluated in July of 1980 for intractable pruritis and intense jaundice. Past medical history was significant for resection of a gastric adenocarcinoma April 1979, at which time a BII anastomosis was done; and for repair of a strangulated inguinal hernia, one month prior to admission. Physical examination revealed a cachectic, dehydrated, and deeply jaundiced, elderly male. Blood pressure was 90/60 mmHg, pulse 120, and oral temperature of 95°F. Abdominal exam demonstrated an 8 cm, firm liver without tenderness, and neither a mass nor spleen was palpable. Stools were positive for occult blood. Work-up included a hemoglobin of 6.6 gm (nl 13.5-18), hematocrit 20.9% (nl 40-54), WBC count 7,300 (nl 4,800-10,800), alkaline phosphatase 1,444 U/L (nl 30-115), bilirubin 18.1 mg/dl total and 13.1 mg/dl direct (nl 0.2-1.2 total, 0-0.3 direct), SGOT 74 U/L (nl 0-41) and albumin 2.3 gm/dl (nl 3.0-5.5). Liver-spleen scan showed a questionable defect in the right lobe of the liver; and ultrasound, a 1.5 cm gallbladder calculi, dilated intra- and extrahepatic ducts, and a questionable mass in the head of the

pancreas. Subsequent ERCP demonstrated a 75% gastrectomy without residual tumor in the stomach remnant and a patent BII anastomosis. At the distal end of the afferent limb, 10 cm distal to the ampulla of Vater, a necrotic, friable tumor mass was noted. The pancreatic duct was irregular with mild narrowing in the pancreatic head and the common bile duct was completely obstructed at this level (Figure 3). Because of intractable pruritis in the setting of recurrent tumor and poor surgical risk, the patient underwent transhepatic cholangiography followed by internal biliary stenting (Figure 2). Postprocedure, a hypotensive episode that resolved with fluid replacement was the only complication. Seven days postprocedure, the bilirubin had fallen to 0.9 mg/dl, alkaline phosphatase to 73 U/L, and SGOT to 18 U/L. Symptomatically, the patient's pruritis resolved completely. He was subsequently discharged home and died three weeks after the stenting procedure. Autopsy revealed extensive hepatic, porta hepatis, and intraperitoneal metastases from gastric adenocarcinoma. The stent remained patent and in proper position.

## Discussion

Operative biliary drainage in malignant obstructive jaundice has a mortality ranging from 20% in non-pancreatic malignancies<sup>8</sup> to 33% with carcinoma of the pancreas.<sup>9</sup> While these figures may be acceptable in patients with potentially resectable lesions, internal or external biliary drainage remains an alternative therapeutic modality in high risk patients or individuals with inoperable disease.

Originally described by Ahnlund et al. in 1963,<sup>3</sup> external biliary drainage was initially used for inoperable obstructive jaundice and proved effective for the intractable pruritis, hepatic decompensation, and recurrent cholangitis that can be seen in this situation. External drainage, however, risks bile salt depletion; and unless bile is re-fed to the patient, does nothing to correct the malabsorption that accompanies such obstruction.

In 1974, Molnar et al. described the first successful internal biliary drainage with placement of a stent.<sup>5</sup> Since that time, numerous articles have documented the efficacy and relative safety of this technique.<sup>10,11</sup> In addition, a number of modifications have allowed permanent placement of various endoprotheses using pusher tubes which obviate the need of an external catheter.<sup>12,13</sup> Originally designed for malignant obstructive jaundice, such stents have also been used in poor risk patients with iatrogenic biliary stricture, intrahepatic stones, and sclerosing cholangitis.<sup>6,7</sup>

The advantages of catheter placement over conventional surgical therapy are several-fold and include a decreased procedure mortality and an attenuated hospital stay. Efficacy in relieving biliary obstruction ranges between 67% and 100% in most series<sup>5,6,10,12,14</sup> and affords the patient improved quality to his remaining life. Complications can include bleeding, which can manifest as hemato-bilia, subcapsular hematoma, or intraperitoneal bleed; local pain at the placement site that usually resolves within the first week; fever related to self-limited bacteremia at time of bile duct manipulation or frank cholangitis; and bile peritonitis related to catheter-induced perforation of the bile duct or leak at the capsular level.<sup>10</sup> The latter complication has been encountered in our personal series. In addition, inability to advance the guide wire

through the level of the tumor has been reported, as has catheter plugging requiring more frequent lavage, or replacement.

Despite the above complications, transhepatic biliary drainage with stent placement is reasonably simple and obviates the need of high risk surgery or prolonged hospitalization. As in our patient, it is a viable and welcome alternative in the management of extrahepatic obstructive jaundice.

## References

1. Elias E, Hamlyn AN, Jain S, et al: A randomized trial of percutaneous transhepatic cholangiography with the Chiba needle versus endoscopic retrograde cholangiography for bile duct visualization in jaundice. *Gastroenterology* 71:439-443, 1976.
2. Sanowski RA, Kozarek RA, Severino G, Taylor F: Thin needle cholangiography in the evaluation of the jaundiced patient. *Arizona Medicine* 36:274-276, 1979.
3. Ahnlund HO, Morales O: Gallgansdrangage efter prcutane transhepatisk-cholangiografi. *Svenska Lakartidn* 60:3684-3691, 1963.
4. Tylen U, Hoevels J, Vang J: Percutaneous transhepatic cholangiography with external drainage of obstructive biliary lesions. *Surg Gynecol Obstet* 144:13-18, 1977.
5. Molnar W, Stockum AE: Relief of obstructive jaundice through percutaneous transhepatic catheter — a new therapeutic method. *Am J Roentgenol Radium Ther Nucl Med* 122:356-367, 1974.
6. Ring EJ, Oleaga JA, Freiman DB, et al: Therapeutic applications of catheter cholangiography. *Radiology* 128:333-338, 1978.
7. Pollock TW, Ring ER, Oleaga JA, et al: Percutaneous decompression of benign and malignant biliary obstruction. *Arch Surg* 114:148-151, 1979.
8. Buckwalter JA, Lawton RL, Tidrick RT: Bypass operations for neoplastic biliary tract obstruction. *Am J Surg* 109:100-106, 1965.
9. Feduska NJ, Dent TL, Lindnauer SM: Results of palliative operations for carcinoma of the pancreas. *Arch Surg* 103:330-334, 1971.
10. Harrington DP, Barth KH, Maddrey WC, et al: Percutaneously placed biliary stents in the management of malignant biliary obstruction. *Dig Dis Sci* 24:849-857, 1979.
11. Ring EJ: interventional radiology of the biliary tract. *Bull NY Acad Med* 56:575-580, 1980.
12. Pereiras RJ, Rheingold OJ, Hutson D, et al: Relief of malignant obstructive jaundice by percutaneous insertion of a permanent prosthesis in the biliary tree. *Ann Intern Med* 89:589-593, 1978.
13. Ukurcharth F, Jensen LI, Olesen K: Endoprosthesis for internal drainage of the biliary tract. Technique and results. *Gastroenterology* 77:133-137, 1979.
14. Burcharth F: A new endoprosthesis for non-operative intubation of the biliary tract in malignant obstructive jaundice. *Surg Gynecol Obstet* 146:77-78, 1978.





# Subacute Combined Degeneration, Neutrophilic Hypersegmentation, and the Absence of Anemia

## A Case Report

John A. Hensing, M.D.

### Abstract

Vitamin B-12 deficiency can give rise to a broad spectrum of neurologic abnormalities including peripheral neuropathy, posterior column degeneration, psychiatric disorders, optic atrophy and retrobulbar neuritis<sup>1</sup> and these syndromes may precede the onset of anemia sometimes by several years.<sup>2,3</sup> A case is presented describing the classic neurologic symptoms of Pernicious Anemia with hypersegmentation of polymorphonuclear cells in the absence of macrocytic anemia.

### Report of a Case

W. B. a 47-year-old white male presented with a history of progressive disability in his hands and feet. He began to note a feeling of coldness in his right foot which progressed to a burning sensation in both feet and eventually involved the hands. He also described a six weeks history of progressively ataxic gait and finally upper extremity ataxia. The patient's father had died at the age of 62 of Pernicious Anemia. The general physical examination was normal with the exception of anisocoria and severe proprioceptive and vibratory sensory loss in both lower extremities. Light touch and pinprick sensations were preserved. He was mildly hyporeflexic in the lower extremities. Plantar reflexes were flexor. His gait was broad based and ataxic.

Laboratory investigations revealed the following values. Hemoglobin was 13.5% gms, hematocrit 40.1%. WBC 6,900 cu/mm with 52% segs, 2% bands, 39% lymphs, 3% monos and 4% EOS. MCV was 91, MCHC was 33.7. Urinalysis was normal as was the T-7. A peripheral smear exhibited hypersegmentation of the neutrophils (defined as 5 or more lobes per cell). The serum B-12 level was 30pcg/ML, normal being 150-

1000pcg/ML. His serum folate value was normal. A Schilling test showed less than 1% excretion in the urine over 24 hours and a 25% excretion over 24 hours with the addition of intrinsic factor. VDRL and ANA were negative. Bone scan and CT scan of the brain were both normal. Therapy was begun with parenteral vitamin B-12, with rapid improvement in his dysesthesia. The patient was lost to follow-up and his hematologic response is unknown.

### Comment

There does not appear to be a good correlation between the hematologic and the neurologic complications of Pernicious Anemia.<sup>1,5</sup> Indeed, this fact suggests that the hematologic and neurologic complications may have different metabolic mechanisms. There is little doubt in light of the above description that this patient's neurologic symptoms were related to his vitamin B-12 deficiency and that he in fact had Pernicious Anemia.

Because neutrophilic hypersegmentation is an early indication of folate or B-12 deficiency,<sup>6,7</sup> its presence should be investigated even in the absence of anemia. In fact, in one recent publication sixty-five patients with hypersegmentation neutrophils in the absence of anemia were evaluated and forty-five of these patients had folate deficiency, B-12 deficiency or both.<sup>8</sup> In this case of well documented Pernicious Anemia, neither anemia nor macrocytosis were present but neutrophilic hypersegmentation was prominent. Because the neurologic manifestations of vitamin B-12 deficiency may take the form of only a psychiatric disturbance, visual disturbance or peripheral neuropathy, vitamin B-12 deficiency may not be readily suspected. In addition, the use of folic acid therapy may improve the hematologic picture of vitamin B-12 deficiency but with subsequent progression of the neurologic disease. Delay in diagnosis and delay in the correct therapy effects the prognosis of neurologic change. The earlier specific therapy is begun, the better the chance of recovery.

This case is presented to draw attention to the appearance of subacute combined degeneration prior to the onset of anemia in patients with Pernicious Anemia. Unexplained neutrophilic hypersegmentation should be fully investigated in all patients.

### References

1. Girdwood RH: Abnormalities of vitamin B-12 and folic acid metabolism: Their influence on the nervous system. *Proc Nutr So.* 68:101-107, 1968.
2. Ospovat NT: Subacute combined degeneration: A case report. *S Afr Med J* 47:2243-2244, 1973.
3. Hall CA: The non-diagnosis of pernicious anemia. *Ann Intern Med.* 63:951-954, 1965.
4. Strachan RW, Henderson JC: Psychiatric syndromes due to avitaminosis B-12 with normal blood and marrow. *Quarterly J. Med* 34:304-317, 1965.
5. Kayser G, Meundorfer B: Peripheral neuropathy in vitamin B-12 deficiency. *J Neurol* 214:183-193, 1977.
6. Hebert V: Experimental nutritional folate deficiency in man. *T A Am Physicians* 75:307-320, 1962.
7. Lindenbaum J, Nath B: Megaloblastic anemia and hypersegmentation. *Br J Haem* 44:511-513, 1980.
8. Hattersley PG, Engels JL: Neutrophilic hypersegmentation without macrocytic anemia. *West J Med* 121:179-184, 1974.

From: Desert Samaritan Hospital, 1400 South Dobson Road, Mesa, Arizona



# An Overview of Genetic Counseling

Richard C. Wagner, M.S.

Editor:  
Frederick Hecht, M.D.

## Abstract

Since World War II knowledge in genetics has grown at a rapid rate. With many common (and uncommon) disorders of genetic and environmental origin, genetic counseling is indicated. This counseling is informational and is designed to provide the person or family with the data needed to make appropriate decisions.

Genetic counseling should be based on accurate genetic diagnosis. This, in turn, is founded upon a detailed family and medical history, physical examination and laboratory studies. Counseling can then be done by the physician or another experienced health worker and the physician.

Two recent developments have been significant in the delivery of genetic services. The first is the training and positioning of genetic associates and the second is the formation of the American Board of Medical Genetics to certify individuals providing genetic services.

With the expansion of genetic services in the state since 1978, Arizona now has the start of a model program for genetic diagnosis and counseling.

**Key Words:** Genetics, Genetic Counseling, Genetic Diagnosis, Genetic Associate.

From: The Genetics Center, 123 East University Drive, Tempe, Arizona 85281. Richard C. Wagner, Genetic Associate and Assistant Director, Clinical Genetics. Reprint requests to Richard C. Wagner, M.S., The Genetics Center, 123 East University Drive, Tempe, Arizona 85281.

## History

Although the term "genetic counseling" was coined in 1947 by Sheldon Reed, then Director of the Dwight Institute at the University of Minnesota, it was not a new concept.<sup>1</sup> The idea that specific physical traits as well as certain diseases tend to "run in families" has been with us throughout recorded history. Perhaps the earliest record of the correct analysis of the segregation of a genetic disease in families and subsequent genetic counseling occurs in the Talmud, the fifth century written codification of ancient Hebrew law.<sup>2</sup> If two boys in a family died from bleeding following circumcision, the Talmud decreed that later born sons from the same mother or her sisters need not be circumcised. It is clear that the ancient Hebrews understood that hemophilia affected only males and was transmitted through unaffected females.

Modern genetic counseling has its basis in the contemporary understanding of human genetics. Until the end of the nineteenth century inheritance was thought to be a result of blending. The concept was that all genetic factors combined in an individual to give continuous variation. The work of the monk, Gregor Mendel,<sup>3</sup> first published in 1865, showed that genetic traits did not blend, but remained specific, often to reappear in future generations. The basic laws of heredity formulated by Mendel provide the foundation for today's understanding of single gene inheritance. They are summarized as follows: 1) Each inherited characteristic, or trait, is governed by something Mendel called a "factor." Today these factors are referred to as genes. 2) There are two complete sets of genes in a given individual. One set of genes is inherited from each parent. 3) Under normal circumstances, half (one set) of each parent's genes are transmitted to each child. The genes for certain characteristics may only seem to disappear in the offspring, yet they remain intact within the individual and eventually re-emerge in subsequent generations. Genes present in the set not transmitted to the offspring will not reappear in later generations. In this way, both similarities and differences between generations can be explained.

## Single Gene Diseases

Mendel's work was rediscovered in 1900. Mendel's laws were quickly applied to man. The first published example of the Mendelian inheritance of a genetic disease was Sir Archibald Garrod's description of alkaptonuria in 1902.<sup>4</sup> Following Garrod's observation, large numbers of single gene disorders were described. Victor McKusick's catalog of single gene disorders, first published in 1966, is now in its fifth edition and has over 2800 entries.<sup>5</sup>

## Chromosome Disorders

It became clear in 1959 with Lejeune's report of an extra chromosome in Down syndrome<sup>1,6</sup> that not all genetic disorders were single gene in nature. Within



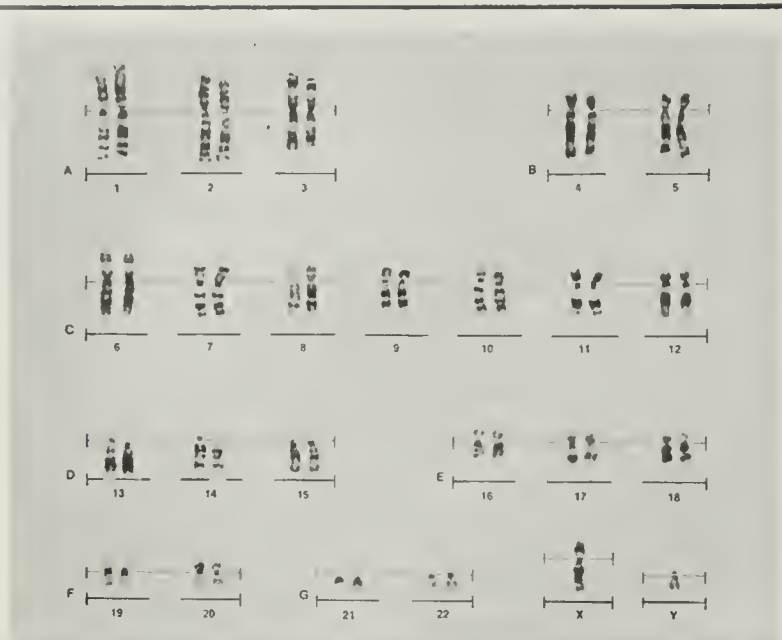


Figure 1

Normal Human Male Karyotype Banded By Trypsin-Giemsa Staining.

## The Aims of Genetic Counseling

The aims of genetic counseling are as follows:<sup>11,12</sup> 1) *To help the family comprehend the medical facts.* As in any other aspect of medicine, these facts include diagnosis, prognosis and treatment of the disorder. 2) *To help the family comprehend the genetic facts.* The aim is to help the family understand both the way heredity contributes to the disorder and the risks for themselves, relatives or future children. 3) *To educate the family about the available options for dealing with the risk of recurrence.* These options may include having children (taking one's chances), artificial insemination, adoption, foregoing children and prenatal diagnosis. 4) *To support the family in choosing the most appropriate option.* The key word here is support. Once a family, in view of their risks, their family goals and their ethical and religious standards, has chosen the option most appropriate for them, the goal is to support and assist them in acting in accordance with their decision. 5) *To assist the family in making the best possible adjustment to the problem now and in the future.* While the genetic counselor cannot make the adaptation for the family, he may be able to assist them in adjustment to, and appropriate management of the disorder.

## Elements of Genetic Counseling

Accurate risk calculation and genetic counseling are and must be based on accurate diagnosis. Genetic diseases are a heterogeneous lot. A particular disease may be segregating as an autosomal dominant condition in one family, as an autosomal recessive in another family, and as an X-linked recessive trait in yet another family. In contrast, individuals even within the same family affected with the same genetic disorder may present with totally different clinical phenotypes. As a result of all this, accurate diagnosis and counseling depends on assembling various pieces of the genetic puzzle correctly. The information required includes: 1) *Family history.* A detailed family history centered around the patient and his problems is invaluable in determining the segregation of the disorder in the family and the calculation of recurrence risks. The pedigree should minimally cover three generations. 2) *Physical examination and laboratory data.* Nothing can substitute for a firsthand look at the patient. Meticulous physical examination and appropriate laboratory tests are done on the patient and his family. 3) *Medical records.* One should never take the word of the family. Records should always be obtained to document all affected individuals or medical problems. 4) *Appropriate consultation and referral.* This applies to both the diagnosis and the management of the disorder. Because of the complexity of genetic disease, a variety of medical specialties may be needed. So may many nonmedical health workers such as audiologists, psychologists or social workers. 5) *Accurate risk calculation.* The calculation of recurrence risks may be as simple as applying the appropriate empiric data for a multifactorial disorder or as complex as the detailed Bayesian analysis of an X-linked recessive trait. In either case, the correct interpretation of the individual or family's risk may be their major basis for important

months following Lejeune's observations, patients with Turner's syndrome were found to have 45 chromosomes (missing an X chromosome)<sup>1,7</sup> and patients with Klinefelter's syndrome were found to have 47 chromosomes (the extra one being an X).<sup>1,8</sup> With the advent of human chromosome banding (Figure 1) in 1970, extra chromosomes could be reliably identified and small defects and rearrangements of the genetic material, which were previously missed, could be easily recognized. There are currently over 60 distinct chromosomal syndromes which have been described,<sup>9</sup> plus hundreds of isolated chromosomal aberrations.

## Multifactorial Disorders

As knowledge in human genetics grew, it became apparent that a great number of disorders were not due to single genes or chromosomal anomalies. The pattern of inheritance for disorders like neural tube defects, congenital heart disease, cleft lip and palate, and many other congenital anomalies is *multifactorial* in nature. These disorders are determined by the interaction of environmental factors and genetic predisposition.

Since World War II there has been logarithmic growth not only in genetic knowledge but also in the number of clinical genetic and counseling centers. In 1951 there were ten established genetic counseling centers in the United States.<sup>1</sup> The 1980 National Foundation/March of Dimes' directory<sup>10</sup> lists over 405 centers in the country. These centers offer a wide range of clinical genetics services including biochemical and clinical genetics, cytogenetics, genetic counseling and prenatal diagnosis.

## What is Genetic Counseling?

Genetic counseling is *not* counseling in the usual sense of giving advice. Genetic counseling is a *communication process*. It involves the sharing of information between an appropriately trained person and a family regarding the occurrence, risks of recurrence, and overall scope of problems associated with a genetic (or sometimes non-genetic) disorder.

reproductive decisions.

Often despite the best efforts of all involved, one may be in the difficult position of not knowing the diagnosis, etiology or prognosis of the disorder. The counselor must be careful to be totally honest with the family and not exceed the limits of the information and knowledge available.

### Who Can Do Genetic Counseling?

Genetic counseling is an integral part of the practice of medicine. Any qualified member of the health care team can provide genetic counseling. This includes family doctors, pediatricians, internists, obstetricians, other medical specialists, clinical psychologists and other qualified health professionals. The person providing genetic counseling must know the relevant facts.<sup>12</sup>

Certain problems, because of their complexity, may necessitate referral to a clinical genetics unit. These centers are under the direction of a physician trained in medical genetics, and have the support of a cytogenetic and biochemical laboratory, good diagnostic facilities and the clinical expertise of a variety of specialists. Even in cases of simple genetic problems, referral to a genetics unit may be indicated to provide follow-up reassurance and support for the counseling done by the primary physician.

One of the most significant recent developments in delivery of genetic services has been the training and positioning of genetic associates with a Ph.D. or M.S. degree in genetic counseling. Their training includes graduate work in genetics, counseling and psychology, in addition to an internship with a clinical genetics unit.

The genetic associate works with the medical geneticist in a manner similar to that of the physician's assistant, helping with the clinical workup and diagnosis and providing genetic counseling and support of the family.

Another new development is the formation in 1980 of the American Board of Medical Genetics, which will very shortly be examining and certifying the physicians, genetic associates and other personnel who provide medical genetics services.

### Genetic Counseling in Arizona

Although genetic services expanded rapidly in many areas of the country after World War II, growth of genetic services in Arizona was very slow until 1978.

Prior to 1978, no full time genetics program, with a full range of services, existed in Arizona. A genetics clinic was held monthly at St. Joseph's Hospital in Phoenix, and there was a prenatal diagnosis program at the University of Arizona.

In 1978, The Genetics Center was established in Tempe. The Center was designed clinically to provide genetic diagnosis and counseling and participate in special care areas such as PKU and other metabolic diseases, Down syndrome, Turner syndrome, and other genetic and related diseases. Laboratory services were initiated at The Genetics Center for cytogenetics and other specialized genetic tests. The program is nonprofit.

The State of Arizona has assisted in expanding genetic services. The State now provides funds for dietary control and monitoring of children with PKU and other metabolic diseases to prevent mental retardation. The State has contracted with The Genetics Center for genetic and related pediatric services to the Central Arizona Child Evaluation Center at Arizona Children's Hospital in Tempe. The State has also granted funds for prenatal genetic services for up to 100 indigent families, not a large number, but a good start.

Prenatal genetic services in Arizona are expanding, but are still insufficient. There are approximately 2000 babies born yearly in Arizona to mothers with advanced age (35 years or older) and only a minority have had prenatal genetic services. Over the past seven years, the University of Arizona has provided prenatal genetic services to over 1000 families.<sup>13</sup> Since 1979, The Genetics Center in Tempe has also provided prenatal services to 700 families. Nonetheless, the total number of patients receiving prenatal genetic services in Arizona represents a minor fraction of the families at elevated risk because of maternal age alone.

To expand genetic service beyond the Phoenix and Tucson metropolitan areas, genetics clinics are being initiated in other important areas of the state. The Genetics Center has, together with the Northern Arizona Child Evaluation Service at Northern Arizona University, held several genetics clinics in Flagstaff.

Arizona cannot be considered a leading state in genetic services. A start has been made in Arizona; it now has the opportunity to initiate and develop a coordinated statewide program for genetic diagnosis, counseling and care.

### References

1. Porter IH: Evolution of genetic counseling in America. In: *Genetic Counseling* Lubs HA, de la Cruz F, (eds), Raven Press, New York 1977, pp 17-33.
2. Hendin D, Marks J: How to protect your family against hereditary disease. In: *The Genetic Connection*. William Morrow and Company, Inc., 1978, pp. 23, 26.
3. Mendel GT: Experiments in plant hybridization. *Verh naturf Ver in Brunn*. Abhandlungen, iv. 1865.
4. Sutton HE: An Introduction to Human Genetics. Holt, Rinehart and Winston, New York, 1975, second edition, p. 5.
5. McKusick VA: Mendelian Inheritance in Man. The Johns Hopkins University Press, Baltimore 1978, fifth edition, p. 975.
6. Lejeune J, Gautier M, Turpin R: Etude des chromosomes somatiques de neuf enfants mongoliens. *C R Acad Sci (D)*, Paris 248:1721-1722, 1959.
7. Ford CE, Jones KW, Polani PE, de Almeida JC, Briggs JH: A sex-chromosome anomaly in a case of gonadal dysgenesis (Turner's syndrome). *Lancet* 1:711-713, 1959.
8. Jacobs PA, Strong JA: A case of human intersexuality having a possible XXY sex-determining mechanism. *Nature* 183:302-303, 1959.
9. De Grouchy J, Turleau C: Clinical Atlas of Human Chromosomes. John Wiley & Sons, New York, 1977, pp. 1-319.
10. Lynch HT, Fain P, Marrero K: International Directory of Genetic Services. Paul NW (eds), 6th edition, New York 1980, pp. 1-54.
11. Hecht F: Principles of human inheritance. In: *Principles of Pediatrics*. Hoekelman RA, Blatman S, Brunell PA, Friedman SB, Seidel HM, (eds), McGraw-Hill 1978, pp. 326-362.
12. Hecht F, Lovrien EW: Genetic diagnosis in the newborn. *Ped Clin of N Amer* 17(4):1039-1053, 1970.
13. Shenker L: Genetic counseling. *Arizona Medicine* 38(1):47-48, 1981.





# Approaches to the Treatment of Pancreatic Carcinoma

Matti S. Aapro, M.D.

**Editors:**

David S. Alberts, M.D.

Ellen M. Chase, B.S.

## Introduction

Adenocarcinoma of the pancreas has steadily increased in incidence in the United States and 22,000 new cases are now diagnosed each year. Most of these patients will die within one year. The death rate from pancreatic cancer is exceeded only by the death rates for lung, large bowel, and breast cancer.<sup>1</sup>

## Surgery

Attempts at curative surgery have been discouraging with less than five percent of resected patients surviving more than five years. There are various technical limitations and only 13% of patients with localized disease are candidates for potentially curative resection. Sixteen percent of those patients who undergo curative surgery will die of surgical complications. By contrast, only six percent of patients undergoing palliative surgery die of operative complications. It should be noted, however, that the operative mortality of Whipple procedures has been reduced recently, with improved techniques and patient selection.<sup>2</sup> Surgery remains the treatment of choice for the rare resectable patient and

has to be considered for palliative bypass procedures whenever it is necessary.

## Radiotherapy

Radiotherapy of pancreatic carcinoma has been reviewed recently.<sup>3</sup> Palliation of pain was achieved with orthovoltage techniques.<sup>3</sup> Megavoltage therapy has increased the palliation rate for pain or jaundice but most reports show that there is no survival benefit with doses under 3500 rads.<sup>4</sup> The need for high-dose radiation has been emphasized by a study which showed a 21% survival at 30 months in patients with locally unresectable pancreatic carcinoma.<sup>5</sup>

Many new techniques which deliver homogeneous doses of radiation to the tumor, yet spare the normal surrounding organs, are under investigation. Good results have been reported with a precision, high-dose technique of 45 MV photons and 15-40 MV high energy electrons.<sup>6</sup> The mean survival was 15 months for patients who also received chemotherapy versus 12 for those receiving radiation therapy alone. Helium ion radiotherapy has also shown promising results, especially for patients with carcinoma confined to the head of the pancreas. Five out of the 16 patients were alive at 6-51 months posttreatment.<sup>7</sup> Unfortunately,

From: University of Arizona Health Sciences Center, Section of Hematology and Oncology, 1501 North Campbell Avenue, Tucson, Arizona 85724

fast neutron therapy has not proven advantageous in the treatment of locally advanced pancreatic carcinoma.<sup>8</sup>

**Single-Agent Chemotherapy**

Chemotherapy has not been studied intensively in pancreatic carcinoma. The debilitating course and lack of easily followable disease parameters of pancreatic carcinoma have dampened the enthusiasm of investigators. The poor performance status of many patients (who often have obstructive jaundice and hepatic dysfunction) further complicates the ability to give adequate drug doses and the evaluation of drug responsiveness. Thus, very few drugs have been studied in large numbers of patients, and even fewer in patients who could tolerate adequate drug regimens. MeCCNU, adriamycin, mitomycin C, 5-fluorouracil (5-FU), and streptozotocin used as single agents have reported response rates of 9%-36%.<sup>9</sup>

**Combination Chemotherapy**

The two most promising combinations currently available are SMF and FAM. SMF (streptozotocin, mitomycin C, and 5-FU) had a response rate of 43% in a series with patients with good performance status. This regimen caused relatively severe gastrointestinal toxicity.<sup>10</sup> FAM (5-FU, adriamycin and mitomycin C) has less gastrointestinal toxicity and a response rate of 40% with responders living significantly longer than non-responders (median of 8+ months versus three months for non-responders).<sup>11</sup> These results have been confirmed by those of a second study.<sup>12</sup> A combination of 5-FU, mitomycin C, and hexamethylmelamine has also shown a response rate of 40% with a projected survival of 42+ weeks.<sup>13</sup>

**Combination Chemotherapy and Radiotherapy**

Most studies combining chemotherapy with radiation therapy have shown an increased survival for the combination.<sup>3,4,6</sup> The GI Tumor Study Group study compared 6000 rads alone versus 6000 or 4000 rads plus 5-FU. Both combination arms showed a significantly better survival compared to radiation alone (median of 35 versus 17.8 weeks).<sup>14</sup> The higher radiation dose increased the median survival but the survival curves intersected at one year and no further differences were seen. One Eastern Cooperative Oncology Group study compared 5-FU alone versus radiation therapy plus post-irradiation 5-FU. There were no significant survival differences between the two therapies at the time of review, implying that radiation therapy before 5-FU might not be beneficial.<sup>15</sup>

Various studies are investigating other ways to combine radiation therapy and chemotherapy. Some preliminary results show that split courses of 2000 rads in two weeks, monthly, with 500 mg/m<sup>2</sup> of 5-FU on days 1, 2, and 3 of each course, repeated two or three times according to tolerance, followed by FAM (omitting mitomycin C during the first two courses) were relatively well tolerated.<sup>16</sup> SMF following mixed beam radiotherapy is also under investigation in patients with unresectable pancreatic carcinoma. Tolerance has been

good (except for the nausea and vomiting caused by streptozotocin). Preliminary results suggest that this therapy may prolong survival.<sup>17</sup> A pilot study for the treatment of unresected, localized pancreatic carcinoma will be started soon at the University of Arizona Cancer Center. Combination chemotherapy (FAM) will be added to split-course radiation therapy.

In conclusion, pancreatic cancer, even in its earliest stages, continues to be one of the most difficult oncologic diseases to manage. In recent years, better selection of patients for radical surgical procedures, improved radiation therapy techniques, and the development of new chemotherapy regimens have led to multimodality treatments which may eventually improve response durations and survival.

**References**

1. Silverberg E: Cancer Statistics, 1978. *CA A Cancer Journal for Clinicians*. 28:17-32, 1978.
2. Edis AJ, Kiernan PD, Taylor WF: Attempted curative resection of ductal carcinoma of the pancreas — Review of the Mayo Clinic experience, 1951-1975. *Mayo Clin Proc* 55:531-536, 1980.
3. Dobelbower RR, Jr: The radiotherapy of pancreatic cancer. *Sem Oncol* 6:378-389, 1979.
4. Moertel CG, Childs DS, Jr, Reitemeier RJ, Colby MY, Jr., Holbrook MA: Combined 5-fluorouracil and supervoltage radiation therapy of locally unresectable gastrointestinal cancer. *Lancet* II:865-867, 1969.
5. Haslam JB, Cavanaugh PJ, Stroup SL: Radiation therapy in the treatment of irresectable adenocarcinoma of the pancreas. *Cancer* 32:1341-1345, 1973.
6. Dobelbower RR, Jr, Borgelt BB, Suntharalingam N, Strubler KA: Pancreatic carcinoma treated with high-dose, small-volume irradiation. *Cancer* 41:1087-1092, 1978.
7. Quivey JM, Castro JR, Chen JTY, Moss AA, Lyman JT, Tobias CA: Helium ion radiotherapy in the treatment of pancreatic carcinoma. *Proc ASCO* 21:416, 1980.
8. Smith F, Woolley P, Rogers C, Ornitz R, Schein P: Fast neutron therapy (FN) for locally advanced pancreatic carcinoma (LAP). *Proc ASCO* 21:367, 1980.
9. Smith FP, Schein PS: Chemotherapy of pancreatic cancer. *Sem Oncol* 6:368-377, 1979.
10. Wiggans RG, Woolley PV, MacDonald JS, Smythe T, Ueno W, Schein PS: Phase II trial of streptozotocin, mitomycin-c and 5-fluorouracil (SMF) in the treatment of advanced pancreatic cancer. *Cancer* 41:387-391, 1978.
11. Smith FP, Hoth DF, Levin B, Karlin DA, MacDonald JS, Woolley PV III, Schein PS: 5-Fluorouracil, Adriamycin and Mitomycin-C (FAM) chemotherapy for advanced adenocarcinoma of the pancreas. *Cancer* 46:2014-2018, 1980.
12. Bitran JD, Desser RK, Kozloff MF, Billings AA, Shapiro CM: Treatment of metastatic pancreatic and gastric adenocarcinoma with 5-fluorouracil, adriamycin and mitomycin-C (FAM). *Cancer Treat Rep* 63:2049-2051, 1979.
13. Brown JC, Bruckner HW, Storch J, Chamberlin K, Pressman PI: Combination therapy for pancreatic cancer. *Proc ASCO* 21:420, 1980.
14. Lokich JJ for the Gastrointestinal Tumor Study Group: Comparative therapeutic trial of radiation with or without chemotherapy in pancreatic carcinoma. *Int J Rad Onc Biol Phys* 5:1643-1647, 1979.
15. Klaassen DJ, Catton GE: Treatment of locally unresectable cancer of the stomach and pancreas, an Eastern Cooperative Oncology Group Study. *Proc ASCO* 21:416, 1980.
16. Levin B, Wernz J, Kinzie J, Moossa A, Newall J, Blum R, Muggia F: Locally inoperable pancreatic cancer: Further observations on a combined radiotherapy chemotherapy approach. *Proc ASCO* 21:419, 1980.
17. Bukowski RM, Gahbauer R, Antunez A: Phase II study of sequential mixed beam radiotherapy (MBR) plus streptozotocin (STZ), mitomycin C (Mito C), and 5-fluorouracil (5-FU) in localized pancreatic carcinoma. *Proc Am Assoc Cancer Res* 21:175, 1980.





# A Community-Based Pediatrics Rotation for Medical Students

Ruth M. Becker, R.N., F.N.P.  
Paula L. Stillman, M.D.

Editor:  
Melvin Cohen, M.D.

### Introduction

In 1979, the Department of Pediatrics at the University of Arizona College of Medicine critically evaluated its third-year clerkship program. Prompted by a declining population in the general outpatient clinic at the University Hospital, new ambulatory patients were sought with whom students might interact.

A review of the recent literature revealed that other schools have introduced students into the community during their third-year pediatric clerkship. These programs have usually accounted for one-half to one day of a student's total pediatric experience. Some experiences have been observational, allowing students to interact with children in a non-hospital setting,<sup>1,2</sup> in other programs students were able to function in the role of teacher for a grade school class.<sup>3,4</sup> Students have responded favorably to these programs.

### Program Description

The University of Arizona chose to include a two-week community rotation as part of the required six-

week clerkship. The goal of the "Spectrum of Pediatrics" rotation was to provide students the opportunity to interview and examine a diverse population of children of all ages from a wide variety of nationalities, socioeconomic backgrounds, and cultural heritages. The population included children in day care centers, schools, residential centers, detention facilities, and private homes; children with emotional problems and children with normal emotional development; children who were well, those who had acute illnesses, and those with chronic disabling disease; children who were separated from their families through foster care, adoption, abuse, or neglect, as well as children who lived within their family structure. The experience emphasized health maintenance and early intervention.

The program was supervised by a nurse practitioner with extensive experience in child care and community resources. The medical students were given a full day orientation before they entered the program. The approach to the pediatric patient, the pediatric interview, and the pediatric examination was described in detail. The students interviewed a mother skilled in giving feedback on the pediatric interview. The students also visited the hospital nursery and were supervised performing an infant examination.

Skills were practiced in audiometry, obtaining and interpreting hematocrits and urine dipsticks, measurement of blood pressures, performing the cover test for strabismus, and checking for hip click. Lectures and discussion were presented on anticipatory guidance, parent counseling skills, child abuse, safety, and crisis points in family development. Nutrition was discussed and developmental testing was demonstrated.

Medical students rotated through the "Spectrum" block in groups of two or three. The nurse practitioner transported the students in a university car to most sites thus minimizing confusion and conserving gasoline. Transit time was utilized to discuss cases, share experiences, and present core topics. Although each student's experience in the "Spectrum" was somewhat unique, the basic structure was the same for all and approximately half of the student's time was spent performing physical examinations.

A variety of community agencies and institutions were personally contacted by the junior clerkship coordinator as referral sources for children who lacked a source of primary health care. Contracts stating expectations, restrictions, and fees were written. Full-time and associate voluntary physician faculty members supervised students as they performed examinations on the children. All children were examined on their own territory: home, schools, day care centers, and job training sites. When large numbers of children were to be examined, an aide was trained to help prepare children for examination, perform laboratory work, and expedite paperwork. After the student performed a brief history and physical examination, he presented the patient to a supervisor who then reviewed and rechecked the student's findings. When appropriate, the

From: The University of Arizona College of Medicine, Dr. Stillman, Associate Professor, Department of Pediatrics, and Curriculum Coordinator. At the time of this project, Ms. Becker was employed as a nurse practitioner by the Department of Pediatrics. Reprint requests to P. L. Stillman, M.D., University of Arizona Health Sciences Center, Department of Pediatrics, Tucson, Arizona 85724.

student and supervisor participated in a counseling session. The students completed an average of seven physical assessments per day.

A variety of patients and settings were made available for the screening physical examinations:

**Newborn Infants:** Homes of parents of newborn infants were visited. Names of families who might be receptive to such a visit were obtained from community programs which provide obstetrical care to low-income families. Home visits gave students an opportunity to interview parents in their own environment, to observe child-parent and sibling-parent interactions, and to evaluate a home in terms of safety, stimulation, and general emotional atmosphere. The visits often led to lively discussions on child-rearing practices, the extended family, single parenting, and teen parenting.

**Pre-school Children:** The majority of these examinations were located in Head Start centers in five counties and in local day care centers. The population came from very diverse ethnic and cultural backgrounds and students occasionally saw two or more children from the same family. Students conducted developmental screening evaluations and assumed the role of teacher in counseling about nutrition and accident and poison prevention.

**Elementary School Children:** These examinations were done on site in the public schools, usually with a written history and without benefit of a parent in attendance. The students gained experience in interviewing and educating youth.

**Adolescents:** Teenagers who required physical examinations were recruited through teen specialty clinics, Job Corps, Youth Services Bureau, and drug and alcohol programs. The medical students had an opportunity to explore concerns of drug and alcohol abuse, body image, sexuality, and family disruptions and to give counseling on these issues under the supervision of the nurse practitioner or physician faculty member. Some gained experience in gynecologic examinations on adolescent females.

The remaining time consisted of observational and interactional situations in a variety of settings:

**Children with Mental Health Problems:** The medical students were first oriented to and then visited an out-patient or residential care facility for children with emotional problems. Students were able to identify disruptive behaviors, discuss possible etiologies, and become familiar with drugs most commonly used in treatment.

**Children with Developmental Disabilities:** (Mental Retardation, Cerebral Palsy, Epilepsy, Autism) This experience was conducted in the Adaptive Education classrooms of the public school system. Students were able to observe persistent primitive reflexes in neurologically impaired children, to hold children with flaccidity or spasticity, to see a variety of children with recognizable syndromes, and to see the results of birth anoxia, near-drowning, encephalitis, accidents, and child abuse. Students performed limited neurological

examinations under the supervision of a pediatric neurologist and were then encouraged to describe and discuss the child's underlying pathology. This rotation also provided contact with physical and occupational therapists.

**Children with Sensory Impairment:** A visit to the State School for the Deaf and Blind introduced students to mobility training for the blind, advanced electronic equipment for the deaf, devices to magnify reading capabilities, braille, sign language, driver's education for the deaf, a homemaking center for the blind, music training, and classrooms and vocational centers for children with sensory impairment. The students had an opportunity to talk to directors and teachers about etiology, screening efficacy, and philosophy of education.

**Gifted and Talented Children:** The medical students actively participated in a public school classroom for gifted and talented second, third, and fourth graders. Dialogue with teachers and children in the classes helped students identify specific stress factors and problem areas faced by these children. Discussions included the impact on the child and the family when a child is labelled as being "different."

**Incarcerated Adolescents:** This setting was included to increase students' skills in communication with adolescents. Medical students and adolescents discussed experiences, both positive and negative, which the adolescents had encountered with the health care delivery system. Medical students drew diagrams and demonstrated various body mechanics in response to questions raised by the youths and then permitted the teenagers to manipulate the medical instruments. The adolescents listened to hearts, checked reflexes, took blood pressures, and looked into ears and eyes. Additional time was spent by the students eliciting suggestions about how physicians might be able to intervene in delinquent behavior by counseling youths and their families. Following the session, students and faculty discussed some of the typical teenage behaviors that were observed and how incarceration affects the youths and the community.

**Abused and Neglected Children:** Students spent one-half day in a child abuse prevention center. They were oriented to the facility, discussed legal aspects of their professional role, and performed limited physical examinations on abused children. Dialogue was held with faculty on etiology, manifestations, and diagnosis of abuse and neglect. A videotape showing child-parent interaction and discussing the bonding process was utilized to emphasize certain points and to encourage students to discuss their own philosophy about parenting.

**Elective:** Each student spent one-half day of elective time in an area of special interest to the student. These included, but were not limited to Child Protective Services, Teen Parent Program, specialty clinics under the auspices of Crippled Children's Clinic, and swim therapy with children with chronic arthritis.



Throughout this program, when abnormalities or problems were uncovered or further consultation was required, the patients were referred to health care systems for which they were financially eligible. The medical students wrote referral letters to specialty clinics, social service agencies, or primary physicians when children who were physically, mentally, or emotionally at risk were identified.

## Results

Because students worked in close proximity, most abnormal findings were shared with all students present and discussed by the attending physician or nurse practitioner. Data on findings and referrals made were kept to determine the type and variety of pathology that students experienced. For example, in one group of 581 Head Start children, 423 notations were made on children above the 90th percentile or below the 10th percentile in height or weight for age. Also identified were 46 cutaneous problems, 57 urogenital problems, 48 upper respiratory conditions, 26 musculoskeletal abnormalities, 10 ophthalmologic conditions, 30 hearing or otic conditions, 57 behavioral or child/parent interactional difficulties, four hematologic problems, 71 heart murmurs with an additional 14 more severe cardiac problems, and 17 elevated cholesterol levels. In addition, several children were identified as high risk because of poor nutritional habits, contributory family health history, or as a result of recent exposure to a contagious disease. One-hundred forty-nine children had incomplete immunization status and 14 had no record of any immunizations. Current acute illness was found in 12 children. Two children were referred because of suspected seizure disorders and one was found to have a closure defect of the palate.

The program was well received by students, community, and faculty. The major advantages cited by the students included becoming comfortable with children of all ages, recognizing variations of normal, identifying and seeing pathology, becoming familiar with developmental milestones, and learning about the broad spectrum of community agencies and services for children. The major disadvantage cited by the students was lack of follow-up information when they made a referral. Perhaps the success of this program can be best exemplified by the fact that the University of Arizona received a contract from the Head Start program to continue these services over the next academic year.

## Discussion

To deliver appropriate health care to all children, the middle class health professional must not remain in a vacuum, but rather must understand and appreciate the life styles and social pressures of patients. The professional must be knowledgeable about community resources and environmental influences. Hopefully, early exposure of the student to the community and its resources will increase the student's awareness of the need to interact with agencies in the promotion of patients' health and development. By examining a large population of children, the medical student is able to gain

knowledge about the ranges of normal growth and development.

Many of the parents were non-English speaking. The challenge of interviewing in a second language or utilizing an interpreter heightened awareness of potential communication problems between families and medical professionals. Students stated that their interaction with children with sensory impairment caused them to develop a positive attitude toward early diagnosis and intervention in these handicapping conditions.

To faculty wishing to implement a similar program, the following suggestions are offered:

1. The local information and referral service or community chest can often provide information on special programs with large potential patient populations that might otherwise be overlooked.

2. Planning should be done in advance. The directors of each program to be visited by the students should be contacted personally. Ideas, goals and expectations should be presented in writing.

3. If full-time and associate voluntary faculty are required to devote a certain number of hours each academic year supervising medical students, they might be offered the opportunity to do this teaching in the community. Individual faculty members must be oriented about the goals of the program as they rotate through the sites.

4. Locating a specific number of children for physical examination each day can be difficult. Having alternate places to visit can supplement and enhance the experience.

5. The program should be financially self-supporting. The full-time nurse practitioner's salary, supplies, and car rental fees can be paid for by the monies collected from several of the agencies to whom services are offered.

Nurse practitioners should be responsible for collection of data on the populations examined, written reports to each agency, and feedback to students on results from their referrals. They are also in a good position to evaluate student performance, attitude, and growth in knowledge and utilization of skills.

## Conclusion

This community-based rotation offers an attractive program for effective student learning of ambulatory pediatrics in various settings. It can easily be adapted by other medical schools wishing to expand student exposure to a large variety of patients.

## References

1. Molnar ET, Armstead D. Students and children learning from each other during a pediatric field trip program. *J of Med Educ* 53:688, 1978.
2. Stillman PL, Redfield DL: A program to teach child growth and development to medical students during a pediatric clerkship. *Arizona Medicine* 34:469, 1977.
3. Ashbach N, Duncan B, Kontnik H: Medical school and elementary school-a cooperative experiment. *J of School Health* 8:458, 1974.
4. Parcel GS, Nader PR, Tiernan K: Evaluation of an outreach activity of pediatric clerkship training. *J of Med Educ* 52:429, 1977.



## The Impaired Resident

Michael W. Loes, M.D.  
Stephen C. Scheiber, M.D.

Editor:  
Thomas E. Bittker, M.D.

### Abstract

Identity, sleep deprivation and finances are three prominent stresses residents face. Failure to adapt causes decreased performance, and contributes to an increased incidence of marital discord, depression and substance abuse. Various aids which focus on helping the resident to cope (support groups, retreats, psychotherapy) are discussed. Measures directed at decreasing environmental stress (increased pay, decreased hours, improved working conditions) are often overlooked.

### Introduction

Stress is frequently thought to be dependent on the capability of the individual. If one were to imagine two people falling into ten feet of water, it stands to reason that the one who can swim will be less stressed than the one who cannot. But, suppose there are alligators in that water? While the swimmer may still experience less stress, the difference may be minimal. Hence, the environmental hazard must be considered when stress is evaluated.

How does one predict who will and who will not perform well in a residency program? Directors, having searched for the performance predictors have found that medical school grades, faculty ratings and Dean's letters are not prognostic indicators of success.<sup>1-3</sup> Perhaps the elusiveness of accurate predictors can be understood if one examines the historical focus of these studies which has been on the individual rather than the environment.

From: University of Arizona Health Sciences Center, Department of Psychiatry, Tucson, Arizona 85724. Michael W. Loes, M.D., Resident in Internal Medicine; Stephen C. Scheiber, M.D., Professor of Psychiatry.

### Identity

Identity is an important stressor for residents.<sup>1,7</sup> One's identity as a physician is formed from both environmental and intrapsychic factors. From within, a resident tries to comfortably form fit himself with his image of a doctor. As a career choice, he is not sure whether he wishes to be generalist, specialist, or academician. There are conflicting role models and he has to incorporate many variables sometimes of a contrary nature. In addition, the resident is facing, perhaps for the first time, the actuality of life and death in modern health care. The resident may wish to escape when he faces his first 3:00 a.m. foul smelling drunk who vomits his evening pizza streaked with blood, goes into shock and requires mouth-to-mouth resuscitation. Disgust turns to anger when the patient requires all night bedside care, and opts to leave against medical advice the next morning only to represent himself in the same extreme medical condition later that day. A hollow emptiness describes the feeling the resident experiences when the attending, who is so removed from the interpersonal drama with the patient, probes as to whether the resident ordered a serum copper level to rule out Wilson's disease!

No, medicine is not a panacea and the patient's quality or quantity of life is more often than not neither improved nor lengthened. A resident is usually coping with patients who fail to alter the behavior which incites and aggravates the illness but nevertheless, the patient expects to be cured. Patients who are motivated to help themselves always seem to be the ones who suffer diseases for which there is no cure. Hence, the cynicism of Samuel Shem's book, *House of God*, has become a reality



for many house officers. Familiarity with some of the 12 commandments in the *House of God* (House of God being a Boston hospital) gives the prevailing attitude: "1) GOMERs don't die (GOMER standing for Get Out of My Emergency Room); 6) There is no body cavity that cannot be reached with a 14 gauge needle and a good strong arm; 7) They can always hurt you more; 9) The only good admission is a dead admission; 12) The delivery of medical care is to do as much nothing as possible."

Ivan Illich in *Medical Nemesis* describes modern health care as a commercial item, a staple following the laws of supply and demand. Hence, the doctor is the business man. He likens medicine to a moral enterprise legitimizing one man's complaints while refusing to recognize another's pain. Consequently, the doctor is the priest. His chapter called the "Macabre Dance of Death" is both enlightening and horrifying. Dying, he proclaims, is a game where the doctor (umpire) specifies the rules.

No, medicine is not always very attractive and it is no wonder that some residents have problems feeling comfortable with their identity. Valdo et al surveyed 53 residents who had just completed their internship and found that 9% said that they would have never done it if they had known what to expect.<sup>8</sup> Nelson et al polled 117 family practice residents and found that 35% had reservations about being a doctor.<sup>9</sup>

Residents face another identity conflict perpetuated by hospital bureaucracies. This conflict arises from the uncertainty as to whether residents are students, faculty, or employees. The Federal Labor Relations Board defines residents as students. Yet, the Internal Revenue Service generally does not allow them to use the student deduction. Hospital personnel officers usually consider residents "employees" but refuse to allow any overtime compensation, claiming residents are exempt from federal laws concerning overtime (which they are). These same personnel officers justify disallowing free meal tickets and free parking, arguing that it would be unfair to single out a subset of employees for a special benefit. Interestingly, most universities consider residents as "faculty members." In this way, the issue of contract is obviated, because university faculty are appointed and hence have no contract. While faculty status confers an honor, it is not accompanied by any significant benefits; honors won't buy a cup of coffee! In addition, house officer faculty status is limited to part-time. This part-time designation disallows voting or tenure rights. Without a well defined status, the resident is left to fend for himself. As such, he feels vulnerable. When pushed, he gets frustrated, and then often enraged.

### Sleep Deprivation

Sleep deprivation represents another prominent stressor. Friedman et al studied the effects of house officer sleep deprivation on their ability to detect

electrocardiographic arrhythmias.<sup>9</sup> Fourteen medical interns were studied. He found that the rested intern (mean of 7.0 hours of sleep) made only  $5.21 \pm (0.93)$  errors compared to  $9.64 \pm (1.4)$  errors for sleep deprived interns (mean of 1.8 hours sleep;  $p$  less than 0.01). Friedman et al noted cognitive, perceptual and affective abnormalities in interns who were sleep deprived.<sup>10</sup> Wilkinson studied the late effects of sleep deprivation in 24 army recruits. He found that subjects who stayed awake for 36 hours then slept for 8 hours performed in a substandard manner on vigilance and serial reaction tests.<sup>11</sup> Yet, call schedules for residents are usually every third night. Tyson et al found that death and accident incidents are higher at night in a neonatal intensive care unit; 60% of intravenous infiltration and 63% of the total deaths occurred between 9:00 p.m. and 9:00 a.m.;  $p$  less than 0.05.<sup>12</sup> These data strongly suggest that every second or every third night call schedules render residents, more often than not, sleep deprived and consequently incapable of rendering optimal patient care.

### Finances

Financial problems are a third stressor. The Minnesota Medical Foundation surveyed graduating students in 1979 and found the average graduating student debt was \$20,000. Frequently, residency compounds rather than lessens the financial pressure. University of Arizona residents were surveyed in 1980 and 60% reported debts greater than \$10,000 with 10% claiming debts in excess of \$40,000. Twelve percent of these residents said that finances may prevent them from completing their program. An additional 8% have taken on military or National Health Service Corps obligations to ameliorate their indebtedness. How much of a psychological burden financial debts represents to a resident has not been clearly assessed but when one considers that 80% of internal medicine and surgery residents at the University of Arizona moonlight, in addition to their heavy duty schedules, undoubtedly the burden is great.

### Marital Discord

It is difficult to tell just when a resident's coping mechanisms begin to fail, but fail they do with ever increasing incidence. The result is maladaptive behavior taking several forms. Three of the most prominent are marital discord, depression, and substance abuse.

Nelson et al surveyed 232 family practice residency programs.<sup>9</sup> Forty-one percent reported residents impaired secondary to marital problems. Fifty-four percent of spouses complained about the long hours. Thirty-nine percent voiced that their spouse was too tired for sex, while 33% were upset that they had to raise the children without sufficient help from their physician spouse. Fifteen percent of spouses reported a breakdown in communication while 19% responded that they just didn't have time for communication. While such marital strife may impair a resident's performance, it should be pointed out that being married probably

decreases the resident's suicidal risk. Pasnau found that a stable relationship with a significant other decreased suicide incidence in residents.<sup>13</sup>

### Depression

Depression is another high risk factor to be aware of with residents. Valdo et al studied 53 first year residents and found that 30% had a significant depression (Feighner criteria). The depression usually began early in the internship year with 44% beginning in the first month and 25% in the second month. The average duration of depression was five months. Two of the depressions lasted 11 to 12 months. Four of the depressed interns had suicidal ideations and three of these had made suicidal plans. Factors predisposing to depression were a previous history of depression (p less than 0.05), and a positive family history of depression (p less than 0.01). There appear to be some correlation with the difficulty of the particular service the intern was on at the beginning of his depression.

### Substance Abuse

Much attention is now being paid to alcoholism and drug addiction in physicians. The American Academy of Family Physicians Committee on Mental Health surveyed 232 Family Practice Residency Training Programs and 7% responded saying they had impaired residents secondary to drug addiction and alcoholism. The American Medical Association states that 1.5% of practicing doctors have known drug addiction and estimates that 7%-8% of physicians are now or will be alcoholics.<sup>14</sup>

### Discussion

What are the first signs that stress is becoming too much for the resident to handle? It may be heralded by increasing marital tension, by more pronounced moody periods or with a cocktail before bed. Doctors have a tendency to deny their problems, often until divorce papers are filed, psychiatric hospitalization is needed or drug dependent behavior is evident. Occasionally, suicidal behavior is the first alerting sign that the stress is too much to handle.

It is clearly time to reevaluate residency training programs. It no longer is acceptable to view the residency training program as an initiation rite. The mortality and morbidity costs are too high for both patients and residents. Prevention of the development of impaired residents should be aimed at both helping the resident to cope and by reducing stress in the system. Counseling services should become more available. Already resident support groups and faculty advisors have become more widespread; so has participation in house staff organizations. A novel approach has recently been initiated at the University of Washington, Department of Pediatrics, where a five day fall retreat is required for all interns. During the retreat, all critical responsibilities are turned over to area practitioners.<sup>15</sup>

All of these measures are good but they are deficient in that they focus principally on the resident and his problems and look toward intrapsychic factors and

causes. It is time to realize that our medical educational system is faulty and in need of immediate repair. Treatment for it requires attention to the sources of conflicts. The health care system must allow the resident time to fulfill family and personal responsibilities as well as responsibilities to patients. This requires tailoring work schedules to allow for appropriate rest and recreation and providing time saving personnel and equipment. Increased sleep might be obtained by providing quieter call rooms, giving time off before or after night call and reducing work hours. Financial debts will be reduced by increasing pay and benefits.

### Conclusion

The amount of stress a resident faces is often overwhelming. The result is unhappy residents and impaired performance. One resident summed it up like this:

*"My only hope is that like the Phoenix,  
I can resurrect at the end of it all;  
but it has changed me permanently  
and not for the best.  
It has made me more selfish,  
more inconsiderate, more dependent  
and more depressed."*<sup>7</sup>

Residency training will continue to change the attitudes of those involved, but, perhaps, the focus of this change can be altered by accepting some of the solutions offered herein aimed at reducing environmental stress and rendering healthier, happier, and better performing residents.

### References

1. Korman M, Stubblefield, RL: Medical school evaluation and internship performance. *J Med Educ* 46:670, 1971.
2. Kegel-Flom P: Predicting supervisor, peer and self ratings of intern performance. *J Med Educ* 50:812, 1975.
3. Clemente M, Michener WM: The Dean's letter of recommendation and internship performance. *J Med Educ* 51:590, 1976.
4. Menke WG: Medical identity: Change and conflict in professional roles. *J Med Educ* 46:58, 1971.
5. Tischler GL: The transition into residency. *Amer J Psychiat* 128:9, 1972.
6. Nelson EG, William FH: Psychosocial factors seen as problems by family practice residents and their spouses. *J Fam Pract* 6:581, 1978.
7. Bates EM: Stress in hospital personnel. *Med J Aust* 2:765, 1975.
8. Valko RJ, Clayton PJ: Depression in the internship. *Dis Nerv Syst* 35:26, 1975.
9. Friedman RC, Bigger JT, Kornfeld DS: The intern and sleep loss. *New Engl J Med* 285:201, 1971.
10. Friedman RC, Kornfeld DS, Bigger TJ: Psychological problems associated with sleep deprivation in interns. *J Med Educ* 48:436, 1973.
11. Wilkinson RT: After effect of sleep deprivation. *J Exper Psychology* 66: 439, 1963.
12. Tyson J, Schultz K, Sinclair JC, Gerald G: Diurnal variation in the quality and outcome of newborn intensive care. *J Peds* 95:277, 1979.
13. Pasnau RO, Russell AT: Psychiatric resident suicide. *Am J Psychiatry* 132:4, 1975.
14. Steindler EM: The Impaired Physician. Chicago, Ill., American Medical Association, 1975.
15. Bergman AB, Rothenberg MB: A "retreat" for pediatric interns. *Pediatrics* 64:528, 1979.





## The University of Arizona College of Medicine An Update

Louis J. Kettel, M.D., Dean

### Abstract

The University of Arizona College of Medicine, after many years of study, was founded at the time of dedicating the Basic Sciences Building — November 17, 1967. At this writing, there have been 769 graduates, including 155 women. The present curriculum evolved after an initial educational approach based upon traditional departmental teaching was restructured to a three calendar year experience. The teaching structure now occupies four calendar years with many innovative educational approaches. Entering classes are Arizona residents with an occasional student from WICHE states having no medical school. Approximately 88 students graduate each year with more than fifty percent entering primary care specialties. Currently about thirty-eight percent of the graduates are establishing medical practice in Arizona. By all measures the College is meeting the expectations of its planners and serving Arizona well.

**KEY WORDS:** Medical school; education; curriculum; medical practice; Arizona.

Springtime, 1981 occasioned the eleventh convocation ceremony for the College of Medicine at the University of Arizona. With the graduation of this 1981 class 769 graduates, including 155 women, have entered the health care scene as physicians educated by the College. Much has been written about the years that lead to this accomplishment including a fine case study written by Merlin K. DuVal, M.D., the founding dean.<sup>1</sup>

From: University of Arizona College of Medicine, Office of the Dean, University of Arizona Health Sciences Center, Tucson, Arizona 85724.

A telescopic chronology of events highlights the early history:

**1959.** A Commonwealth Fund grant to the Arizona Board of Regents in the amount of \$135,000 put in place a team of consultants to study the need for a medical school in Arizona.

**1962.** The Arizona Medical School Study (known familiarly as the Volker Report after the head of the consultant team, Joseph F. Volker, DDS, Ph.D., then Director of Research and Graduate Studies at the University of Alabama Medical Center) and its conclusions were endorsed by the Board of Regents.

In brief, the study concluded the state would be well served by the establishment of a medical school and the resources were adequate to support a four year school. The study further recommended that the school be built on the academic campus with the greatest level of development of graduate education and that the school own and operate a teaching hospital of 300 or more beds.

**1963.** The legislature appropriated funds to the President of the University of Arizona to proceed with planning.

**1964.** Dr. Merlin K. DuVal formally professor of surgery and assistant director of the University of Oklahoma Medical Center came to Arizona as the first dean.

**1964.** A state appropriation of \$160,000, was added to a second Commonwealth Fund grant of \$240,000 for planning to be used through fiscal year 1965.

**1965.** The statewide fund raising by Founders for Arizona Medical Education (FAME) led by the late William R. Matthews editor and publisher of the Tucson *Arizona Daily Star*, raised \$3 million. Federal matching funds of \$4.3 million were received to build the Basic Sciences Building.

**1966.** The planning team was recruited. Oscar A. Thorup, Jr., M.D., later to develop the Department of Internal Medicine, joined Dr. DuVal to design the Clinical Sciences Building and teaching hospital. Philip H. Kruttsch, Ph.D., who later became professor and head of the Department of Anatomy, oversaw the design of the Basic Sciences Building. John D. Palmer, M.D., Ph.D. developed the Multidiscipline Teaching Laboratories and David Bishop was responsible for creating the medical library.

**1967.** November 17, 1967 was the dedication date for the Basic Sciences Building. The first of 32 medical students began studies in September of 1967, almost precisely at the time the building was completed.

**1971.** In May the first class graduated and held its convocation as the first official function in the Clinical Sciences

Building. University Hospital admitted its first patients in September. Its construction was funded by the sale of \$8.5 million in revenue bonds to be retired from student registration fees, and \$14.8 million in matching funds from the Bureau of Health Manpower of the U. S. Public Health Service.

### The Curriculum

During the planning period, discussions were held among the related academic disciplines at the University of Arizona. The possibility of a medical school built without its own basic science departments and dependent upon a relationship with the undergraduate campus was explored. Among the potential disciplines, only microbiology expressed any interest in a tight relationship or shared resources, while all other disciplines suggested the College of Medicine develop departments of its own. Hence, early on, a decision was made to have independent College of Medicine departments of anatomy, biochemistry, microbiology, pharmacology, physiology and pathology. A traditional four year curriculum was designed with basic sciences taught in the first two years and clinical sciences and electives in the second two years. Recruiting therefore followed from this decision, although innovative courses and approaches to education were a part of the curriculum from the start and so continue. Among early decisions was the establishment of a Division of Social Perspectives in Medicine created to topics such as ethics, health policy and socioeconomics were brought to the attention of faculty and students.

From the first days, students were brought into contact with patients, virtually on entry to the College. This practice continues. The curricular philosophy assumes that medical education is a continuum which proceeds from the undergraduate years into graduate and postgraduate practice life. The curriculum goal is to educate physicians who will become lifelong learners of medicine.

A major curricular innovation was the derivation of a three-year curriculum begun in 1972. This experiment in education functionally telescoped the basic science teaching into approximately 18 calendar months and placed clinical topics in the remaining 18 months. As a part of this curricular revision, further innovative changes in curriculum and educational philosophy resulted in the development of a course in Human Behavior and Development and a modified approach to the introductory material in clinical medicine under the general rubric of Preparation for Clinical Medicine. As a benefit of the three-year curriculum, it became possible to enlarge class size. By 1974 the entering class had

increased from the initial 32 to the present class size of 88 entering students each year.

Because of the unique nature of a beginning medical school, a longitudinal study of graduates and their performance has been maintained. With curricular innovations and a variety of different approaches to teaching established subjects, it has been important to monitor the performance of graduates. Without expanding in any great detail, suffice it to say, that Arizona graduates perform well as measured by National Board of Medical Examiners testing; their continual performance is near the median for the nation in all facets of the testing. Graduates are regularly licensed in the state of their practice choice. The attrition rate has remained less than two percent for all years of school and feedback from residency program directors tells us that our graduates are among the best that they see. Hence, neither the peculiarities characteristic of early curriculum development, nor the innovation of a three year curriculum have impacted negatively on performance.

For a number of reasons, perhaps the most important being the stresses caused by the pace of learning, the College returned to the traditional four year curriculum in 1978. The innovative courses of the three year curriculum were retained while released time during the summers was returned and a significantly slower pace of learning encouraged. Particularly important in this transition was a restructuring of the Preparation for Clinical Medicine course. Under the guidance of Paula L. Stillman, M.D. Patient Instructors are used to teach interviewing and basic physical examination skills. This nationally recognized educational methodology has now been applied in the residency training programs and continuing medical education courses.

#### **The Selection Process**

A school of medicine is known by its product, the graduate physician. From the first, the College admissions policy has sought applicants from a broad spectrum of interests. Just as the curriculum evolved to assure that graduates could enter any discipline for further education, so the admissions process has developed to select students with a diversity of career goals. From the outset, the legislature intended that first priority be given to residents of Arizona. Additionally, some applicants are admitted from WICHE, states without medical schools. No special consideration has ever been given to any particular premedical school or major, but the College requires satisfactory accomplishment of studies in general and organic chemistry, physics, general

biology or zoology and English.

The selection of students depends on an evaluation of the premedical grade point average, performance on the New Medical College Admission Test, a personal statement of interests, letters of recommendation especially from premedical advisors, and the results of interviews by both the faculty and practicing physicians. At the present time 88 students enter each fall.

The size of the graduating classes directly parallels the entering class. Because some students have chosen to take longer than the required curricular time to complete their course work, the number of graduates has always varied. The early classes of 1971 and 1972 were the smallest. The largest class was in 1975 when the change to the three year curriculum caused an overlap with the four year curriculum class and a total of 108 students graduated.

The graduating class in 1980 was unique. As a result of the curriculum expanding to four years in 1978, space was available in the third curriculum year. Thus the class was composed of students who either extended to four years from the previous three year curriculum or transferred into the College of Medicine at the beginning of the junior year. This graduating class was quite diverse having both students educated completely in Arizona's College and students who received portions of their medical education at medical schools in other states as well as other countries.

#### **Outcomes**

While members of classes as early as 1976 remain in graduate training programs, it is now possible to look at practice and location trends of graduates. Since most graduates practice close to their training programs, it is not surprising that a rather constant percent of College of Medicine graduates begin practice in the State of Arizona. This has averaged 38 percent for the eleven graduating classes. This number is similar to the number of graduates who stay in Arizona for residency programs.

Because many graduates are still in training programs, it is difficult to make projections on future practice site selection or trends in final specialty choice. We do know that more than 60 percent of the graduates have been entering primary care specialty training programs either in family practice, general internal medicine or general pediatrics. The largest number of graduates practice in cities greater than 50,000 population. On the other hand, a number have consistently entered rural settings. In Arizona, the selection of practice sites has included Safford, Yuma, Flagstaff, Miami, Globe, Morenci, Casa Grande, Prescott, Bisbee, Pinetop, Sierra Vista, various reservation sites and the

smaller communities surrounding Phoenix and Tucson.

#### **Strategies, Today and Tomorrow**

The future of the College of Medicine is bright indeed. The faculty see their mission as achieving excellence in education, research and service. They include graduate and continuing medical education among their responsibilities. Hence, graduate programs in anesthesiology, internal medicine and its specialties, surgery and its specialties, neurology, obstetrics and gynecology, pediatrics, psychiatry, radiology and its specialties, preventive medicine and family practice are established. Emergency Medicine will be added soon. Research is focused in areas which are conceived as most needed in Arizona. Particularly noteworthy are the studies which relate to cancer, respiratory disease, heart disease and arthritis. The service role centers on perinatal and high risk pregnancy care, occupational medicine, cancer chemotherapy and radiation therapy, organ transplant and a variety of special procedures not generally available elsewhere in Arizona.

In its evolution, the College has developed a strong relationship with University Hospital. This institution, the laboratory of the College of Medicine for teaching and investigation, also functions as a superb community hospital with the best possible patient care its highest priority. The model of high quality patient care is the most important criteria for such a teaching institution. To that end, University Hospital is neither uniquely competitive, nor merely additive to other hospitals in the community. It does attempt to be a model in all areas of its work, but remains only one of the many affiliated institutions in the state which are necessary to provide all aspects of education for the College's programs.

The earliest charge by the Board of Regents to the University of Arizona was to develop a College of Medicine of excellence. Secondly, the College was charged to build a unique teaching hospital. These ends both have been met. Arizona's College of Medicine and the Arizona Health Sciences Center are alive and well. We look to the decades ahead with pride and anticipation.

#### **Reference**

1. DuVal MK: University of Arizona, College of Medicine. In: *Case Histories of the New Medical Schools*. VW Lippard, EA Purcell (eds), Josiah Macy Jr. Foundation, New York, 1972, pp 1-32.



## **Market-Place Competition: The Answer to Health Cost Escalation?**

Market-place competition, the economist's answer to cost containment efforts in medicine, has become the darling of the present political persuasion. Although some feel this supply-sider's economic theory was born on a cocktail napkin, without serious validation, it nevertheless stands totally out front as an alternative to mandatory cost containment regulation or modification, and self-restraint within the status quo. The challenge has been given to those who hold the view (and that includes most of the medical profession) that the health care industry, because of its unique personal service, is not responsive to the usual market-place economics, that which industry would define as "competition." Indeed, physicians would often find such "competition" repugnant or even unprofessional. To the extent that these procompetitive forces are embraced, there will be significant changes in the existing medical order.

Professor A. Enthoven's "Consumer Choice Health Plan," developed initially in 1977 for HEW in anticipation of universal health insurance, is the model for the "competitive strategy." The basic building blocks include: 1) consumer choice among multiple health plans, 2) a fixed dollar subsidy to pay for insurance premiums so the consumer will be rewarded for choosing a low-cost plan, 3) similar rules applied to all competitors so one does not have an unfair advantage, and 4) grouping physicians into competitive economic units. There has been a gradual recognition that the growth of third-party payment and large subsidy, have largely eroded the control implicit in a fee-for-service arrangement, (co-insurance plans and deductibles). To the point that within the present system both patient and physician lack the incentive to constrain utilization of health care services is to acknowledge what market competition theorists call "market failure." Their answer, by way of competition incentive, will ultimately lead to a reduction in both demand and supply of service — in short, a "less for less" approach to cost containment.

At first glance, the physician can only sense a feeling of frustration and despair. The reward for their past efforts to bring to their patients, individually and collectively, the highest quality medical care in the world is now being placed in the pressure vise of market place economics. These are terms foreign to an accepted value system of ethics and way of practice. They imply a major emphasis on price as the driving factor; they compel the health system to function as a business with the bottom line emphasis placed on survival, self-gain, and profitability. In this competitive environment, who is to adjudicate competing forces vs. community need? How is quality to be safeguarded when choices are made on the basis of price? What provision will allow for preservation of the teaching institution and its relatively higher costs? Total consumer sovereignty is implied under a "competitive system," yet it is an unlikely reality in a health care system where such sovereignty is more often surrendered to the physician in the uniqueness of the patient-doctor relationship.

There are, however, forces within the competitive strategy which may serve to moderate the over-utilization by both patient and physician from which the present system suffers. The purpose of the economic incentives offered the consumer, via multiple-choice options, would be to reduce the demand for medical and hospital services. The knowledgeable consumer, in making their choice of more or less care, would continue to be influenced by access, quality, and personal service. The profession would have to develop a more precise measurement for quality and under-utilization, as the potential for abuse increases under the competitive approach. The incentive to cost containment under a prepaid capitation provider program is to reduce the supply of service. To the extent that this restraint is limited only to the present overuse, the effort may be helpful. The danger, in a competitive market-place, lies in carrying the restraint too far so proper care and/or the quality of care suffer. Let there be no mistake, competitive strategy, as applied to cost containment, implies a form of incentive regulation, or restated, health-care rationing.

Moderation in rapidly escalating hospital charges could be anticipated with a change from a retrospective cost

**President**  
**Clyde W. Kurtz, M.D.**

**President-Elect**  
**John E. Oakley, M.D.**

**Vice President**  
**Neopito L. Robles, M.D.**

**Secretary**  
**Earl J. Baker, M.D.**

**Treasurer**  
**Clifford D. DeBenedetti, M.D.**

**Past President**  
**John T. Clymer, M.D.**

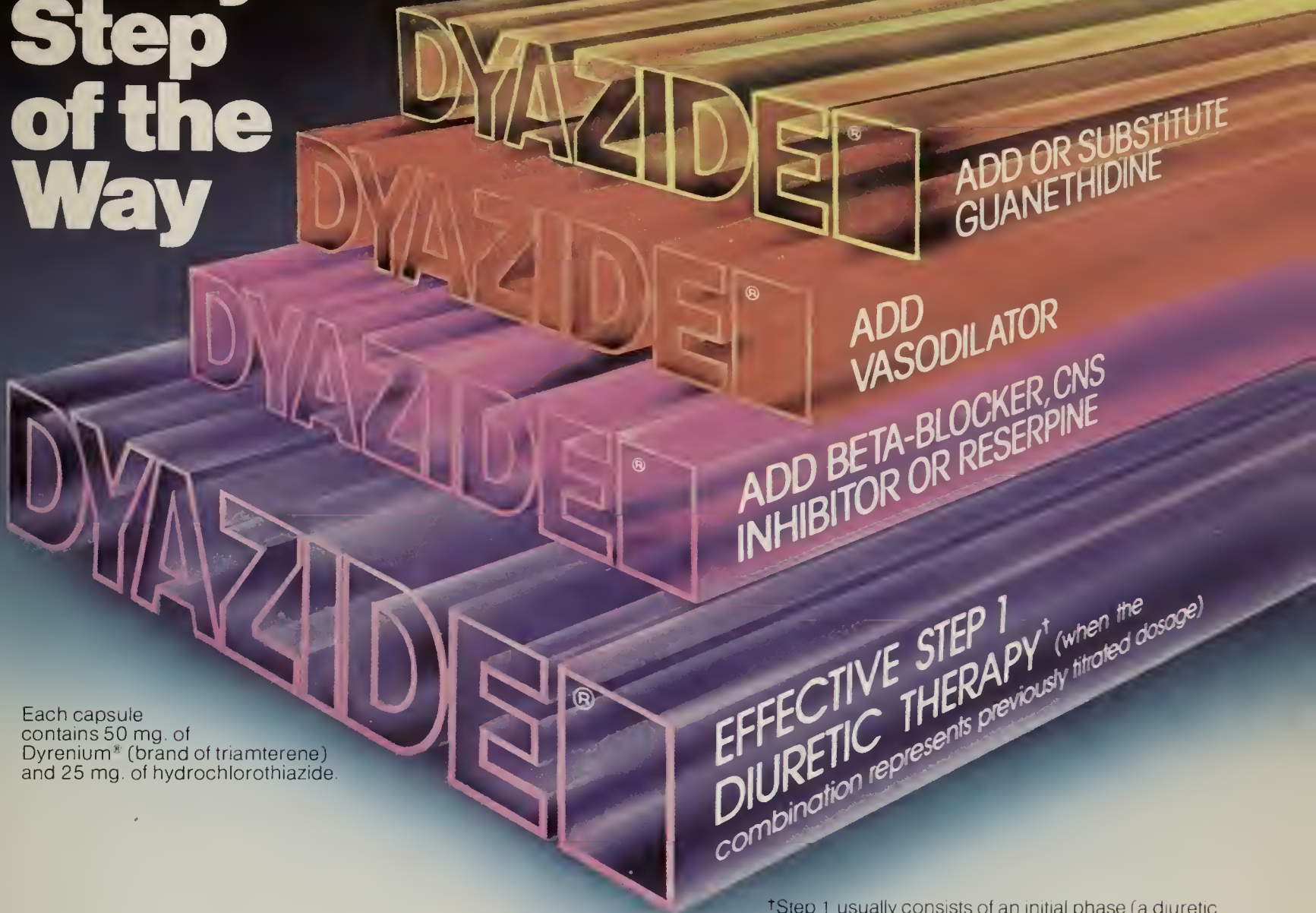
**Executive Director**  
**Bruce E. Robinson**

**Publishing Committee**  
**Marshall B. Block, M.D., Chairman**  
**Burnell R. Brown, M.D.**  
**George E. Burdick, M.D.**  
**Kenneth B. Desser, M.D.**  
**Benjamin K. Harris, M.D.**  
**Jonathan M. Levy, M.D.**  
**William B. McGrath, M.D.**  
**Jay W. Smith, M.D.**  
**Sidney C. Werner, M.D.**



# In Hypertension\*...When You Need to Conserve K<sup>+</sup>

## Every Step of the Way



Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

†Step 1 usually consists of an initial phase (a diuretic alone), a titration phase (dosage adjustment and/or addition of a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent), and a maintenance phase (a diuretic alone or in combination with a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent).

Serum K<sup>+</sup> and BUN should be checked periodically (see Warnings).

Before prescribing, see complete prescribing information in SK&F Co. literature or PDR. The following is a brief summary.

#### WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K<sup>+</sup> levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K<sup>+</sup> intake. Associated widened QRS complex or arrhythmia requires prompt additional therapy. Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and

triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Watch for signs of impending coma in severe liver disease. If spironolactone is used concomitantly, determine serum K<sup>+</sup> frequently, both can cause K<sup>+</sup> retention and elevated serum K<sup>+</sup>. Two deaths have been reported with such concomitant therapy (in one, recommended dosage was exceeded in the other, serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis and aplastic anemia have been reported with thiazides. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. Dyazide® interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with Dyazide®, but should it develop, corrective measures should be taken such as potassium supplementation or increased

dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and Dyazide should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. Dyazide should be withdrawn before conducting tests for parathyroid function.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth, anaphylaxis, rash, urticaria, photosensitivity purpura, other dermatological conditions, nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances. Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and, rarely, allergic pneumonitis have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis and of impotence have been reported with the use of Dyazide, although a causal relationship has not been established.

**Supplied:** Bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

**SK&F CO.**  
a SmithKline company  
Carolina, P.R. 00630





## No one wakes up thinking, "Today I'm going to abuse my child."

Abuse is not something we think about. It's something we do.

Last year in America, an estimated one million children suffered from abuse and neglect, and at least 2,000 of them died needless, painful deaths.

The fact is, child abuse is a major epidemic in this country.

The solution? Part of it lies in your hands. With enough volunteers, local child abuse prevention programs could be formed to aid parents and children in their own communities. With your help, most abusers could be helped. Please write for more information on child abuse and what you can do.

What will you do today that's more important?

**Abused children are helpless.  
Unless you help.**

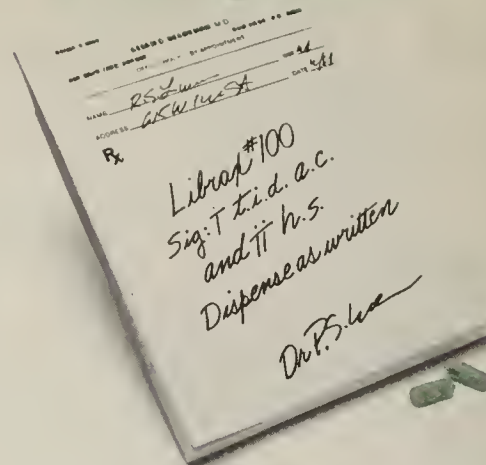


**Write:** National Committee for Prevention of Child Abuse,  
Box 2866, Chicago, Ill. 60690

A Public Service of This Magazine  
& The Advertising Council



# Specify Librax®



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows "Possibly" effective as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis. Final classification of the less-than-effective indications requires further investigation.

**Contraindications:** Glaucoma, prostatic hypertrophy, benign bladder neck obstruction, hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage, withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.

As with all anticholinergics, inhibition of lactation may occur.

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially, increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression, suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants, causal relationship not established.

**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated, avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction, changes in EEG patterns may appear during and after treatment, blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.



Roche Products Inc.  
Manati, Puerto Rico 00701

# Irritable BOWEL SYNDROME\*

Artist's concept of myoelectrical slow waves of the colon which seem to determine the frequency of colonic motor activity.

## A visible difference in myoelectric rhythms of the colon

Studies reveal an increased frequency of 3-cycles-per-minute slow wave basic electrical activity in the colons of patients with IBS—a significant difference in basic colonic rhythm patterns from normal subjects.<sup>1,2</sup> These findings suggest a physiological basis for the spasm and hypermotility characteristic of IBS. The role of severe anxiety in triggering or aggravating such symptoms has long been recognized. Consequently, treatment should focus on both aspects of the problem.

## Librax: A logical choice for patients with IBS

Logical, because the antispasmodic actions of the Quarzan® (clidinium bromide/Roche) component of Librax can help to relieve the distressing abdominal symptoms associated with IBS.\* Logical, because the antianxiety actions of the Librium® (chlordiazepoxide HCl/Roche) component can help to reduce the excessive anxiety that can contribute to IBS flare-ups.

**References:** 1. Sullivan MA, Cohen S, Snape WJ: *N Engl J Med* 298:878-883, Apr 20, 1978.  
2. Snape WJ et al: *Gastroenterology* 72: 383-387, Mar 1977.

Specify **Adjunctive Librax®**

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

Antianxiety/Antisecretory/Antispasmodic

\*Librax has been evaluated as possibly effective for this indication. Please see summary of prescribing information on facing page.

ROCHE®



Although weight loss achieved in a weight control program varies from patient to patient, this simulated sequence of a professional model illustrates dramatically the benefits of a successful weight loss program.



getting there...



...takes dietary restriction, regular exercise, behavior modification, and sometimes the addition of an effective anorectic.

prescribe

# Tenuate<sup>®</sup> Dospan<sup>®</sup> <sup>IV</sup> <sup>c</sup> (diethylpropion hydrochloride USP)

75 mg controlled-release tablets

the #1 prescribed anorectic

## An effective short-term adjunct in an indicated weight loss program

Overweight patients in certain diagnostic categories often require strict obesity control. Diethylpropion hydrochloride has been reported useful in obese patients with certain complications. While it is not suggested that Tenuate in any way reduces these complications in the overweight, it may have a useful place as a short-term adjunct in a prescribed dietary regimen. Tenuate should not be administered to patients with severe hypertension; see additional Precautions and Adverse Reactions on this page.

## In uncomplicated obesity

Many patients, on the other hand, present with excess fat but no disease. While this condition is often termed uncomplicated obesity, complications of both a social and a psychologic nature may be distressingly real for the patients. In these cases, a short-term regimen of Tenuate can help reinforce your dietary counsel during the important early weeks of an indicated weight loss program.

## Clinical effectiveness

The anorectic effectiveness of diethylpropion hydrochloride is well documented. No less than 18 separate double-blind, placebo-controlled studies attest to its usefulness in daily practice.<sup>1</sup> And the unique chemistry of Tenuate provides "... anorectic potency with minimal overt central nervous system or cardiovascular stimulation."<sup>2</sup> Compared with the amphetamines, diethylpropion has minimal potential for abuse.

**Tenuate—it makes sense.  
And it's responsible medicine.**

# Merrell Dow

\*Registered Trademarks of MERRELL-NATIONAL LABORATORIES Inc., Cayey, Puerto Rico 00633

References: 1. Citations available on request from Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio 45215. 2. Hoekenga, M. T. et al. A comprehensive review of diethylpropion hydrochloride. In Central Mechanisms of Anorectic Drugs, S. Garattini and R. Samanin, Ed., New York: Raven Press, 1978, pp. 391-404.

Tenuate<sup>®</sup> <sup>IV</sup>  
(diethylpropion hydrochloride USP)

Tenuate Dospan<sup>®</sup> <sup>IV</sup>  
(diethylpropion hydrochloride USP)  
controlled-release

AVAILABLE ONLY ON PRESCRIPTION

### Brief Summary

**INDICATION:** Tenuate and Tenuate Dospan are indicated in the management of exogenous obesity as a short-term adjunct (a few weeks) in a regimen of weight reduction based on caloric restriction. The limited usefulness of agents of this class should be measured against possible risk factors inherent in their use such as those described below.

**CONTRAINDICATIONS:** Advanced arteriosclerosis, hyperthyroidism, known hypersensitivity, or idiosyncrasy to the sympathomimetic amines, glaucoma. Agitated states. Patients with a history of drug abuse. During or within 14 days following the administration of monoamine oxidase inhibitors, (hypertensive crises may result).

**WARNINGS:** If tolerance develops, the recommended dose should not be exceeded in an attempt to increase the effect, rather, the drug should be discontinued. Tenuate may impair the ability of the patient to engage in potentially hazardous activities such as operating machinery or driving a motor vehicle; the patient should therefore be cautioned accordingly. When central nervous system active agents are used, consideration must always be given to the possibility of adverse interactions with alcohol. *Drug Dependence:* Tenuate has some chemical and pharmacologic similarities to the amphetamines and other related stimulant drugs that have been extensively abused. There have been reports of subjects becoming psychologically dependent on diethylpropion. The possibility of abuse should be kept in mind when evaluating the desirability of including a drug as part of a weight reduction program. Abuse of amphetamines and related drugs may be associated with varying degrees of psychologic dependence and social dysfunction which, in the case of certain drugs, may be severe. There are reports of patients who have increased the dosage to many times that recommended. Abrupt cessation following prolonged high dosage administration results in extreme fatigue and mental depression; changes are also noted on the sleep EEG. Manifestations of chronic intoxication with anorectic drugs include severe dermatoses, marked insomnia, irritability, hyperactivity, and personality changes. The most severe manifestation of chronic intoxications is psychosis, often clinically indistinguishable from schizophrenia. *Use in Pregnancy:* Although rat and human reproductive studies have not indicated adverse effects, the use of Tenuate by women who are pregnant or may become pregnant requires that the potential benefits be weighed against the potential risks. *Use in Children:* Tenuate is not recommended for use in children under 12 years of age.

**PRECAUTIONS:** Caution is to be exercised in prescribing Tenuate for patients with hypertension or with symptomatic cardiovascular disease, including arrhythmias. Tenuate should not be administered to patients with severe hypertension. Insulin requirements in diabetes mellitus may be altered in association with the use of Tenuate and the concomitant dietary regimen. Tenuate may decrease the hypotensive effect of guanethidine. The least amount feasible should be prescribed or dispensed at one time in order to minimize the possibility of overdosage. Reports suggest that Tenuate may increase convulsions in some epileptics. Therefore, epileptics receiving Tenuate should be carefully monitored. Titration of dose or discontinuance of Tenuate may be necessary.

**ADVERSE REACTIONS:** *Cardiovascular:* Palpitation, tachycardia, elevation of blood pressure, precordial pain, arrhythmia. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride. *Central Nervous System:* Overstimulation, nervousness, restlessness, dizziness, jitteriness, insomnia, anxiety, euphoria, depression, dysphoria, tremor, dyskinesia, mydriasis, drowsiness, malaise, headache, rarely psychotic episodes at recommended doses. In a few epileptics an increase in convulsive episodes has been reported. *Gastrointestinal:* Dryness of the mouth, unpleasant taste, nausea, vomiting, abdominal discomfort, diarrhea, constipation, other gastrointestinal disturbances. *Allergic:* Urticaria, rash, ecchymosis, erythema. *Endocrine:* Impotence, changes in libido, gynecomastia, menstrual upset. *Hematopoietic System:* Bone marrow depression, agranulocytosis, leukopenia. *Miscellaneous:* A variety of miscellaneous adverse reactions has been reported by physicians. These include complaints such as dyspnea, hair loss, muscle pain, dysuria, increased sweating, and polyuria.

**DOSE AND ADMINISTRATION:** Tenuate (diethylpropion hydrochloride): One 25 mg. tablet three times daily, one hour before meals, and in the evening if desired to overcome night hunger. Tenuate Dospan (diethylpropion hydrochloride) controlled-release: One 75 mg. tablet daily, swallowed whole, in the morning. Tenuate is not recommended for use in children under 12 years of age.

**OVERDOSAGE:** Manifestations of acute overdosage include restlessness, tremor, hyperreflexia, rapid respiration, confusion, assaultiveness, hallucinations, panic states. Fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Overdose of pharmacologically similar compounds has resulted in fatal poisoning, usually terminating in convulsions and coma. Management of acute Tenuate intoxication is largely symptomatic and includes lavage and sedation with a barbiturate. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendation in this regard. Intravenous phentolamine (Regitine<sup>®</sup>) has been suggested on pharmacologic grounds for possible acute, severe hypertension, if this complicates Tenuate overdosage.

Product Information as of June, 1980

Licensee of Merrell<sup>®</sup>  
MERRELL-NATIONAL LABORATORIES Inc.  
Cayey, Puerto Rico 00633

Direct Medical Inquiries to:



MERRELL DOW PHARMACEUTICALS INC.  
Subsidiary of The Dow Chemical Company  
Cincinnati, OH 45215, U.S.A.

**Merrell Dow**



reimbursement system to a prospective basis or negotiated rate. But, even this change in method of financing hospital costs has serious questions concerning its beneficial impact on lowering costs. The competitive strategy has distinct limitations when applied to hospitals, if they are to continue as presently structured — a community service and resource — rather than as a business.

Current studies infer that physician induced demand does not represent a major demand determinate. Indeed, it is the physician's restraint, as he acts on behalf of his patients under the fee-for-service system, which refutes much of the procompetition push for a change in the delivery system. Under the fee-for-service system the major constraint on physician utilization of service lies in the patient's willingness and ability to pay. Under the competitive system of capitation prepaid mode, the major restraint to physician utilization of service lies in its effect on their own economic well being. That is to say, allocative decisions are made within a fixed predetermined budget. It is my belief that physicians, by and large, are motivated only by the desire to treat the patient's illness in the most effective manner with the greatest likelihood of a successful outcome. To this end, both patient and physician should remain free to choose the environment most suitable to their individual preferences; the virtue of a pluralistic society.

Have we come full circle? Some twenty years ago, we were encouraged and reluctantly persuaded to develop fee schedules so insurers might more accurately predict cost factors. With government becoming a major provider through Medicare and Medicaid programs, the profession once again responded to similar requests with the involvement of the UCR concept. This third-party intrusion into the system has, in great part, led to the very incentives which we are now told are leading to a collision course with economic and political reality. Once again, it is budget control, and gaining predictability over expenditures that government and large insurance purchasers are concerned about. Their answer this time is to decry the need for market place competition under the threat of alternative stricter regulation or public utility-like control. The "this time" implication, however, means massive change in the present system of delivery care: a change potentially destructive to the patient-doctor relationship; a change which could alter the hospital from a community service orientation to a business-like octopus. Most importantly, a change which could lead to consumer confusion, lack of confidence, and attitudinal changes expressing doubt as to the

credibility of the medical profession and health service institutions; and finally, a change which could result in "processing of human beings."

In short, we need to carefully scrutinize the intent of those who would extrapolate business sector economic theories to the health care field. This is not to condone complacency. Flexibility and individual creativity are required of the health profession if the excellence in care now provided is to continue. We may welcome change or oppose it, but let us not be identified with the "I didn't know it was happening" group.

A reduction in government's participation in both financing and regulating, complemented by a reduction in first-dollar coverage in health benefits by industry, would largely alleviate the present rapid escalation of health costs. Additional changes would be necessary: tax laws which would eliminate the incentive to over-insure, and encouraging the insurance industry to cost-contain, not by controlling medical practice but in defining the limits of insurance coverage via monetary or service exclusion. It may mean a belt-tightening for the patient, physician and hospital, but this could hardly be called a "major overhaul" of the present system. It represents only a belated acknowledgment of the health professional's wisdom a generation past when they advised government of the potential costliness of their social ventures. For those who view these comments as a typical response from an aging leadership, don't despair. By 1990 40% of all practicing physicians will have received graduate medical training since 1979. I have always liked the Will Rogers quote, "Why doesn't somebody present the truth about our present economic condition? We spend years of wild buying on credit, everything under the sun, whether we needed it or not, and now we're having to pay for it, howling like a coon. This would be a great world to dance in if we didn't have to pay the fiddler."

Clyde W. Kurtz, M.D.  
President  
Arizona Medical Association

## Why Hospitals are Practicing Medicine

As one stands back and looks at the monuments which hospitals have built to themselves in the guise of their non-profit status, one can also appreciate that hospitals are gearing up to begin a more intensive effort to make themselves *providers* of medical care rather than the *recipients* of same.

In support of this new aggressive approach are the overt advertising campaigns now being launched by many hospitals. Television commercials, newspaper advertisements, development of "health fairs" at each hospital, establishment of outlying "medical clinics" are attempts to draw patients to the "best campuses" as hospitals like to call themselves nowadays. (More and more buildings, housing more elaborate equipment interspersed with art work, taking up bigger and bigger chunks of real estate.)

Futhermore, in the guise of "teaching staff" more and more hospitals are hiring full-time salaried physicians to run everything from "teaching programs" to "medical laboratories." Full or partial support of their salaries come from seeing patients and/or doing ancillary medical work which generates income to help support the facility in question. Hospitals are thus practicing medicine through their salaried employees and are generating additional income in the process. For instance income is generated by direct patient care performed by salaried physicians in all specialties and indirectly by performance of ancillary services such as x-ray, physical therapy, laboratory etc., and surgical services, i.e., same day surgery ("in by 9:00, out by 5:00"). In addition, the hospitals have already built or are planning to develop medical office buildings, which in most instances, are built on land that is owned by the hospital, even though the building may be owned by the physicians. Although financially such an arrangement with long-term leases has proved beneficial for the physicians investing in such facilities, they are another way the hospitals have for insuring a closely tied group of "patient suppliers." The use of the hospital's x-ray, laboratory, physical therapy department, etc. by such office complexes, draws income to the hospital which ordinarily would be diffused to other health care providers. These buildings so closely tied to the hospital raise the specter of a future closed staff policy.

Why has this come about? The answer is complex. The advent of modern medical technology and the cost of same, has led



to centralization of medical resources and the most obvious rallying point has been the hospital. They had the expertise in finance and business management and the ability to generate income to support such a role. With health insurance (private and government), the money from inpatients helped build the "complex." The sense of security the community gave to the hospital and the sense of security the hospital gives to the community, led to an unregulated expansion of hospital growth. (Recently that has been questioned, but attempts at regulation have not always been successful). All went well until inpatient medical care could not defray the costs of running "the complex." Insurance carriers recognized the additional cost to hospitalize a patient and began subsidizing outpatient evaluations to a greater extent than previously.

This led to a reduction in income to the hospital as surgical and medical procedures and workups shifted to the non-hospital environment. The hospitals countered and have aggressively fought back trying to hold on to the health care dollar by building attractive outpatient facilities for medical services. Witness the massive expansion programs of all Phoenix area hospitals (John C. Lincoln, Phoenix Baptist Hospital, St. Joseph's Hospital, Good Samaritan Hospital, Scottsdale Memorial Hospital, Phoenix Memorial Hospital, Maryvale Samaritan Hospital, and St. Luke's Hospital.) They also are expanding into non-patient, for-profit businesses to help cope with their decreasing income. The "buying" of ambulance services, (surface and helicopter), surgical and medical supply companies, and other endeavors give insight into the overall plan of expansion such corporations have in mind.

It is too early to tell whether the battle that is being waged will be beneficial for the hospitals. Competition between hospital "boundaries" is being waged in the courts, one hospital versus another, fighting for the ever enlarging population. The "fall-out" could conceivably be the bankruptcy of one or another facility which may or may not be beneficial depending upon one's perspective. Whether the outcome will be beneficial to the surrounding community is not clear. It is also difficult to assess whether the outcome will be beneficial to those practicing medicine. It would appear worthwhile to closely monitor this evolutionary change as hospitals appear to be positioning themselves to be independent providers of health care in direct competition with other established modes of health care delivery.

Marshall B. Block, M.D.  
Editor

## President's Comment

Dr. Block's comments directed to the hospital's changing role in its expansion of services is timely and, indeed, the focal point of coffee conversation in the doctors' lounges I frequent.

Most physicians, their patients, and communities at large have grown accustomed to thinking of our hospitals as institutions whose purpose is intended to serve their patients and communities as centers of resource for health care. To this end, we all have given time, dollars and expertise. One of the great sadnesses experienced in my practice years has been to observe the increasing "institutional orientation" viewed by hospital administrators today as opposed to "community orientation." One might excuse this narrowed view of hospital management (as a reflection gained by business-oriented baccalaureate diplomas), but physician and community would hope for and, indeed, should expect a differing view from its hospital boards and trustees who ultimately pass on policy. If their purpose, as representatives of the public at large, is to monitor and guide their institutions toward community service, then certainly one would expect a prevailing attitude of intra-institutional cooperation focused to serve patient needs. The system, from that view, somehow has broken down.

Boards have become a self-perpetuating rubber stamp for management rather than reflecting community consensus of need. Present laws allow debit financing for capital expansion requirements to completely bypass what — as recently as 20 years ago — would have required community support and approval. This drift toward business-oriented expansion of services and their ultimate goal of profit will eventually garner public distrust and disgust. Why else this tremendous expansion in hospital-marketing-PR budget but to counter and persuade a perceived public resistance and industry suspicion.

The issue of cost containment in the health care sector remains a vital concern of the public, industry and government. Knowledgeable leadership from the medical profession at the community level is vital to achieving any acceptable solutions to these problems. Medical staff commitment to the effort is our opportunity to interface directly with hospital administrators and boards. We can speak not only to the issues of medical care but also management as it concerns our interests and those of our patients.

Hopefully, the present trend toward malalignment between the medical profession and hospital objectives can be

altered to avoid a collision course. Indeed, in the public interest, it is vital that we remain complementary in our mission of public service. Our greatest impact will be felt at the staff level and where there are conglomerates, a unified staff effort. Credibility in this effort will be viewed in the light of public interest and commitment toward their good.

At state level, two proposed projects are in the mill: 1) an in-depth study of the problem of hospital-service expansion as it relates to impact on private practice and 2) a proposal to industry for a cooperative effort to address the issues of health care and cost to their employees.

Two things we don't need are disunity and complacency.

Clyde W. Kurtz, M.D.  
President, ArMA

## The Pineal Gland and the Search for Its Secrets

Since antiquity, a small protuberance atop the third ventricle of the brain has fascinated men of inquiry. The story begins around 300 B.C. when Herophilus of Alexandria, credited by Galen as the first to perform dissection on human bodies and now looked upon as the father of anatomy, discovered the human pineal body. In the ensuing years of ancient Greek medical philosophy, this tiny but centrally placed part of the brain came to be considered the seat of the soul. This concept was espoused by Erasistratus, another Alexandrian scientist who followed Herophilus and today enjoys respect as the father of physiology. The seat of the soul theory received strong support at the end of the Middle Ages by Rene Descartes, who believed that the pineal contained psychic and somatic activating principles, the so-called "animal spirits" postulated by Galen of Roman medicine some fifteen hundred years earlier. In the second century A.D., Galen had given the descriptive term "conarium" to the pineal because of its evident conical shape. He accorded the structure great importance in his influential concept of a *pneuma* of natural, vital and animal spirits.

Curiously, in spite of the great advances made during the 18th and 19th centuries and in the first half of the 20th century, medical science regarded the pineal as a functionless rudiment. Why? Because its evolutionary history, as a compound structure in certain species of



cold-blooded vertebrates, included a parietal "eye" having the morphology of a primitive photoreceptive organ. Moreover, the pineal's association with the metaphysical lingered on — a stigma further discouraging medical scientists from investigating what appeared to be a vestigial appendix of the diencephalon.

Interesting discoveries toward the end of the 19th century suggested other theories to some thinkers. In 1889, on the heels of the discovery of the endocrine glands by Claude Bernard and Brown-Sequard, a German physician named Heubner described a boy with *pubertas praecox* who was suffering from a pinealoma. This finding led to much speculation on the pineal as an endocrine regulator of gonadal development, and by the 1920's Viennese clinicians were referring to the organ as the "Keuschheitsdruese" or "chastity gland!" Indeed, experiments with crude pineal extracts were found to have significant antigonadotrophic effects in laboratory animals. Such extracts were even used in clinical treatment of gonadal hyperdevelopment or precocity in Europe prior to World War II.

Pioneer endocrinologists in the early 20th century discovered that the microscopically distinctive cells of the pineal, termed pinealocytes and resembling multipolar nerve cells at first glance, have a rich supply of blood vessels, lack efferent nerve processes and receive innervation by terminals of the autonomic nervous system. The recognition that pinealocytes have more of the morphological characteristics of endocrine cells than of neurons, strengthened the belief of endocrinologists that the pineal was a gland.

To clinicians, at least prior to 1950, the pineal "body" (or "epiphysis cerebri: as their anatomical colleagues glorified it in Latin) was primarily an organ of dubious function which contained mineralized concretions — a radio-opaque "brain sand" that gave the organ its greatest attention as a reliable landmark in brain roentgenography.

Perhaps the pivotal point in the history of pineal research came in 1951 when Julius Kitay, a student at Harvard Medical School, began a summer library project and ended up with an exhaustive two-year survey of published studies. With his teacher Mark Atlschule, Head of Internal Medicine at McLean Hospital in nearby Belmont, Kitay amassed nearly 2,000 references on the pineal in more than a dozen languages. Their 1954 book "The Pineal Gland" included the deduction that the pineal was surely involved in gonadal function. In that same year Aaron Lerner, a dermatologist at Yale, discovered the presence of the indoleamine melatonin in bovine pineal extracts. Clearly, the book by Kitay and Atlschule and the discovery

by Lerner were the cornerstones of the nascent science of pinealogy.

Contemporary pineal research finds the University of Arizona Health Sciences Center making important contributions. The center's efforts are directed to elucidating the chemical structure and mechanism of action of putative pineal hormones. In the Department of Anatomy laboratory investigators study the intracellular structures of pinealocytes which undergo changes with varied schedules of light and darkness. They isolate pinealocyte secretory granules in an attempt to determine the chemical nature of their contents and the effects of such substances on reproductive hormones. Parallel physiological experiments conducted under controlled lighting conditions show that pinealectomy, or pineal denervation, alter hypothalamic catecholamine turnover rates and radioimmunoassayable levels of gonadotrophins, prolactin and gonadal steroids. They have learned that the pineal gland mediates olfactory as well as photic stimuli, both of which thereby influence the development and function of the reproductive system. Unique experiments by this group have opened an exciting area of pineal exploration. Pineal activation results in suppression of chemically-induced, gonadotrophin-dependent mammary tumors. These novel results could hold great potential and significance for future oncological research.

Situated physiologically between environmental "zeitgebers" or "time-givers" and the hypothalamus of the brain, the pineal gland transduces exteroceptive stimuli into neuroendocrine modulatory signals that regulate the activity of the hypothalamo-hypophysial-gonadal axis. As part of this biological clock, the pineal serves a paramount role in certain seasonally breeding, photoperiodically sensitive species. The human pineal has the same endocrine morphology noted for animals, and contains more serotonin than any other part of the brain. Melatonin levels in human blood and urine, derived in part from pineal serotonin, show striking circadian rhythms similar to those seen in experimental animals. An active field of clinical research today includes studies on melatonin rhythms and their alterations in certain disease states.

The pineal gland is no longer considered a vestigial, functionless part of the brain receiving its chief notice only in skull radiographs. Today's medical students are taught that it is an active, perhaps prepotent endocrine gland playing a great role in regulating hypothalamic and pituitary function. As the next decade of pineal research unfolds, it may come to light that all

endocrine organs are regulated in part by this active organ of internal secretion. In this broader sense, the ancient teachings of Erasistratus that the pineal controls the stream of the "spiritus vitalis" which mediates all psychic and somatic function may indeed be upheld.

Bryant Benson, Ph.D.  
Professor and Head  
Department of Anatomy

Louis J. Kettel, M.D.  
Dean



## *Briefly Noted*

Congratulations to **Guery Flores**, of Sierra Vista who was recently certified in Forensic Pathology. Dr. Flores, Cochise County Medical Examiner, spoke on Forensic Medicine at the October meeting of the Cochise County Medical Society.

Members of the **Pinal County Medical Society** recently presented a \$1000 scholarship to the Central Arizona School of Nursing in an effort to encourage students to enter the field of nursing and remain in Pinal County following completion of their education.

**Brendon C. Hirschberg, M.D.**, Chairman of Continuing Medical Education, Flagstaff Hospital and Medical Center, coordinated plans for a Course in Flexible Sigmoidoscopy presented at Little American in Flagstaff in August.

Radio listeners in Flagstaff and Tucson receive frequent tips on staying healthy thanks to the efforts of concerned physicians in their communities. **Thomas E. Vorphal, M.D.** of Flagstaff and **Ronald P. Stark, M.D.** of Tucson write and produce ten and thirty second spot announcements dealing with good health which are aired by local stations. It's good P.R. for the medical profession and helpful to patients.

ArMA President, **Clyde W. Kurtz, M.D.**, has been busy this fall explaining some of the factors behind the rising cost of health care to residents of the Phoenix area. Dr. Kurtz was a guest on radio station KOY's Michael Dixon Talk Show and has also appeared before the Optimist Club of Phoenix and the Encanto Kiwanis Club. During the next few months he will address members of the Phoenix Exchange Club, the Scottsdale Rotary

Club and the American Business Womens Association. Dr. Kurtz has also recently visited the Mohave County and Pima County Medical Societies.

AMA President, **Daniel T. Cloud, M.D.** has also been on the speaking trail. He was a recent guest on KTAR's Midday program and spoke before the Coconino County Medical Society in October.

The 8th Annual Arizona Conference on Rural Health held in Prescott in August took on a new look this year when the program was expanded to include a seminar on Emergency Medical Care. ArMA members serving on the faculty included **Mark Ivey, Jr., M.D.**, Payson; **Donald B. Kunkel, M.D.** of Phoenix; **Kenneth L. Raessler, M.D.** and **William J. Thomas, M.D.** of Prescott; and **John C. Oakley, M.D.**, **Lewis S. Shenker, M.D.** and **Martin E. Silverstein** of the Health Science Center, University of Arizona, Tucson. **Andrew W. Nichols, M.D.**, Director of the Office of Rural Health at the University of Arizona coordinated planning assisted by Drs. **Carl R. Newman**, **W. David Rummel**, and **John E. Oakley** of Prescott.

Basic Athletic and Sports Injury Care (B.A.S.I.C.), a program developed to teach youth sports personnel how to deal with emergency situations that occur on the field, was presented to more than 450 Pop Warner coaches and assistant coaches at Arizona State University in August. The first of its kind in the country, the B.A.S.I.C. program was developed by **Thomas P. Foerster, M.D.** of Peoria, Chairman of ArMA's Sports Medicine Section, and members of the committee. ArMA members who served as instructors were **Roman T. Lewicky** of Flagstaff; **Oliver J. Harper, M.D.**, **Timothy R. Harrington, M.D.** and **Stuart B. Phillips, M.D.** of Phoenix; **Charles M. Kerr, M.D.** of Tucson; and **Paul W. Kliewar, M.D.** of Wickenburg.

The JCAH Committee of Yavapai Community Hospital in Prescott has expended considerable effort to maintain full accreditation of the hospital since the JCAH has revised and improved its standards. Thanks to their aggressive attitude, the hospital has been fully accredited. **W. David Rummel, M.D.** and **Mike Strasser, M.D.** are co-chairmen of the JCAH at Yavapai Community Hospital.

We would like to hear from You.

If you have news about yourself or fellow members of your county medical society, let us know. Honors and awards, election to office in a professional society or other organization, participation in a conference or giving a speech are of interest.

Please send items to **Briefly Noted**, Arizona Medicine, 810 West Bethany Home Road, Phoenix, Arizona 85013.

### Editor

**Marshall B. Block, M.D.**

### Associate Editors

**Kenneth Desser, M.D.**  
**C. Herbert Fredell, M.D.**  
**Warren Gorman, M.D.**

### Editorial Board

**Thomas E. Bittker, M.D.**  
**John R. Green, M.D.**  
**John W. Kennedy, M.D.**  
**William B. McGrath, M.D.**  
**Arthur R. Nelson, M.D.**  
**Charles Nugent, M.D.**  
**Eric Prosnitz, M.D.**  
**Sydney Salmon, M.D.**  
**Lawrence Stern, M.D.**

### Managing Editor

**Bruce E. Robinson**

### Editorial Assistant

**Joan M. Alexander**



The minutes appearing in this section have been edited to conserve space. A complete copy of the minutes of any meeting will be mailed to any member requesting them.

#### SCIENTIFIC ASSEMBLY COMMITTEE

The meeting of the Scientific Assembly Committee of the Arizona Medical Association, Inc., held at 810 West Bethany Home Road, Phoenix, Arizona, on July 25, 1981, convened at 12:31 p.m., Stuart I. Holzman, M.D., Chairman, presiding.

It was pointed out that the "Total Physician Registration" for 1980 was 559 and for 1979 was 697 indicating a continuing decline in interest.

#### Meeting Evaluation Forms

The committee reviewed the evaluation forms that were distributed during the meeting (a copy of this report is available upon request).

#### 1982 Meeting Plans

##### House of Delegates 1982 Schedule

6:00 A.M. - Friday, May 28 - Executive Committee - Breakfast Meeting - South Court Room #1.

8:00 A.M. - Friday, May 28 - Board of Directors' meeting - North Court Rooms #1 & #2.

10:00 A.M. - Friday, May 28 - House of Delegates' meeting - Rooms E, F. & G - Grande Ballroom.

2:00 P.M. - Friday, May 28 - Amendments Reference Committee - South Court Rooms #1 & #2.

2:00 P.M. - Friday, May 28 -

|                              |     |
|------------------------------|-----|
| Total Member Registration    | 359 |
| Non-Member M.D.s*            | 95  |
| Total Physician Registration | 454 |
| Non-Physician Registration** | 349 |

|                    |     |
|--------------------|-----|
| Total Registration | 803 |
|--------------------|-----|

#### \*Recap of Non-Member M.D.s

|                       |    |
|-----------------------|----|
| Intern & Residents    | 32 |
| Guest Speakers        | 15 |
| Out-of-State***       | 13 |
| In-State, In Practice | 21 |
| In-State, Retired     | 14 |
| Total                 | 95 |

#### \*\*Recap of Non-Physician Registration

|                          |     |
|--------------------------|-----|
| Exhibitors (Cml. & Sci.) | 190 |
| Others                   | 20  |
| Auxiliary                | 139 |
| Total                    | 349 |

#### \*\*\*States & Counties Represented

|              |    |
|--------------|----|
| California   | 2  |
| Iowa         | 1  |
| Maine        | 1  |
| Michigan     | 1  |
| Nebraska     | 1  |
| New Mexico   | 2  |
| Pennsylvania | 1  |
| Washington   | 1  |
| Wisconsin    | 3  |
| Total        | 13 |

| Registered ArMA Members by Specialty |     |
|--------------------------------------|-----|
| ALM                                  | 3   |
| AI                                   | 3   |
| AN                                   | 9   |
| CD                                   | 3   |
| D                                    | 3   |
| EM                                   | 6   |
| FP                                   | 41  |
| GE                                   | 1   |
| GP                                   | 30  |
| GER                                  | 1   |
| GYN                                  | 4   |
| IM                                   | 23  |
| ND                                   | 1   |
| N                                    | 6   |
| NPM                                  | 1   |
| NTR                                  | 1   |
| OBG                                  | 17  |
| OM                                   | 1   |
| OPH                                  | 2   |
| OTO                                  | 3   |
| PTH                                  | 1   |
| CLP                                  | 1   |
| PD                                   | 9   |
| PDA                                  | 1   |
| PM                                   | 7   |
| P                                    | 8   |
| CHP                                  | 1   |
| PH                                   | 2   |
| R                                    | 5   |
| DR                                   | 3   |
| RHU                                  | 1   |
| CDS                                  | 3   |
| CRS                                  | 1   |
| GS                                   | 41  |
| NS                                   | 7   |
| ORS                                  | 13  |
| PDS                                  | 1   |
| PS                                   | 3   |
| TS                                   | 2   |
| U                                    | 7   |
| Retired                              | 24  |
|                                      | 300 |

#### Review of 1981 Meeting

Attendance report as follows:

| County     | County Membership | No. of Members Registered | No. of Registered For H of D Only | Total Registered | % of Members Registered |
|------------|-------------------|---------------------------|-----------------------------------|------------------|-------------------------|
| Apache     | 10                | 1                         | 0                                 | 1                | 10.0%                   |
| Cochise    | 35                | 3                         | 1                                 | 4                | 11.4%                   |
| Coconino   | 61                | 3                         | 1                                 | 4                | 6.6%                    |
| Gila       | 7                 | 5                         | 0                                 | 5                | 71.4%                   |
| Graham     | 7                 | 1                         | 0                                 | 1                | 14.3%                   |
| Greenlee   | 6                 | 0                         | 0                                 | 0                | -0-                     |
| Maricopa   | 1710              | 213                       | 38                                | 251              | 14.7%                   |
| Mohave     | 36                | 10                        | 0                                 | 10               | 27.8%                   |
| Navajo     | 10                | 2                         | 0                                 | 2                | 20.0%                   |
| Pima       | 790               | 44                        | 14                                | 58               | 7.3%                    |
| Pinal      | 37                | 4                         | 2                                 | 6                | 16.2%                   |
| Santa Cruz | 8                 | 1                         | 0                                 | 1                | 12.5%                   |
| Yavapai    | 53                | 6                         | 1                                 | 7                | 13.2%                   |
| Yuma       | 55                | 7                         | 2                                 | 9                | 16.4%                   |
| Total      | 2825              | 300                       | 59                                | 359              | 12.7%                   |

Resolutions Reference Committee -  
North Court Rooms #1 & #2.

7:00 P.M. - Friday, May 28 - Reception  
- Garden Area.

8:00 P.M. - Friday, May 28, Banquet for  
estimated 300 persons - Rooms A, B & C  
- Grande Ballroom.

6:30 A.M. - Saturday, May 29 -  
Maricopa County Caucus - South Court  
Rooms #1 & #2.

6:30 A.M. - Saturday, May 29 - Pima  
County Caucus - North Court Room #1.

8:00 A.M. - Saturday, May 29 - House  
of Delegates' meeting - Rooms E, F & G -  
Grande Ballroom.

12:00 Noon - Saturday, May 29 - Board  
of Directors - Luncheon meeting - South  
Court Rooms #1 & #2.

#### **Auxiliary Program - Tentative**

##### **Thursday - May 27, 1982**

1:30 P.M. - Executive Committee

2:30 P.M. - Annual Meeting

##### **Friday - May 28, 1982**

9:00 A.M. - Post Convention Board  
Meeting.

11:00 A.M. - Committee Meetings

12:00 Noon - Annual Luncheon with  
installation of 1982-83 officers

2:00 P.M. - Workshops (2) to (run  
concurrently to 4:30 P.M.

#### **Scientific Program**

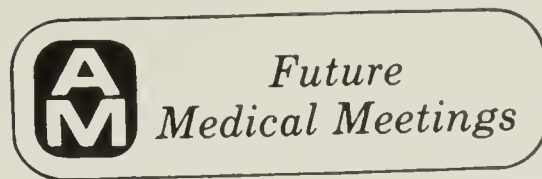
Extensive discussion ensued on plans  
for providing a scientific program during  
1982, following which this action was  
taken.

*It was moved and carried to  
recommend to the Board of Directors  
that the 1982 Scientific Program of the  
Arizona Medical Association consist of  
four consecutive monthly one-half day  
"Current Prospectives" meetings,  
beginning in December 1981 and  
preferably being held on Wednesday or  
Thursday afternoons, with a fifth and  
like meeting to be held in conjunction  
with the May 1982 meeting of the House  
of Delegates. Each such meeting would  
be held at ArMA Headquarters, co-  
sponsored by ArMA and an outside  
organization, with such outside  
organization providing a speaker and  
promotion for the meeting, which would  
be devoted to one of the four major  
disciplines (Medicine, Surgery,  
Pediatrics, and OB/GYN), with no  
registration fee being required and  
coffee and soft drinks being provided.*

#### **1983 Meeting Plans**

The concept of having a consortium of  
specialty society meetings all on the  
same dates was discussed. Part of this  
discussion included recent correspon-  
dence from various specialty societies,  
most of which showed little or no  
interest.

It was determined to not pursue this  
concept further at this time, and to wait  
to see the outcome of the 1982 meeting  
format.



The following institutions and organizations have  
been accredited for their continuing medical  
education programs by the Liaison Committee on  
Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona  
Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program,  
(THMEP) Tucson  
University of Arizona College of Medicine,  
Tucson  
Veterans Administration Medical  
Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above  
produce a variety of continuing medical education  
programs. Each accredited institution and  
organization is responsible for designating which of  
these programs meet ArMA's requirements for  
Category 1 credit. Physicians who participate in  
programs which are designated Category 1 by  
accredited institutions will receive Category 1 credit  
toward the ArMA Certificate in CME and the AMA's  
Physician's Recognition Award

## **OCTOBER**

#### **8th Annual Orthopedic Lectureship - Total Joint Update**

October 23 and 24, 1981. Veterans  
Administration Hospital, Phoenix. Sponsor:  
Maricopa County General Hospital. Contact:  
H. J. Louis, M.D., 4910 N. 44th Street,  
Phoenix, Arizona. Approved for Category 1  
credit.

#### **Fluid, Electrolyte, & Acid-Base Balance**

October 24, 1981. The Pointe Resort,  
Phoenix. Sponsor: Memorial Hospital.  
Contact: Medical Staff Secretary, Memorial  
Hospital, 1201 South Seventh Ave., Phoenix,  
AZ 85036. Approved for 6 hours of Category 1  
credit.

#### **Access: Conference on Disabled Workers**

October 27-28, 1981. Marriott Hotel, Tucson.  
Sponsor: U of A College of Medicine.  
Contact: Herschella L. Horton, R.N., Arizona  
Center for Occupational Safety and Health, U  
of A Health Sciences Center, Tucson, AZ  
85724. Approved for Category 1 credit.

#### **Current Concepts in the Management of Non-Insulin-Dependent Diabetes**

October 29, 1981. Adams Hilton Hotel,  
Phoenix. Sponsor: U of A College of  
Medicine. Contact: Lolly Dawn, Office of  
CME and Outreach, U of A Health Sciences  
Center, Tucson, AZ 85724. Approved for 4  
hours of Category 1 credit.

#### **Cardiopulmonary Intensive Care**

October 31, 1981. Arizona Biltmore, Phoenix.  
Sponsor: U of A College of Medicine, Doctors  
Hospital, American Thoracic Society, and  
Med. Sect. of Az Lung Association. Contact:  
Shorty Welnick, Medical Staff Services,  
Doctors Hospital, 1947 E. Thomas Road,  
Phoenix, AZ 85016. Approved for Category 1  
credit.

#### **Management Problems in Geriatric Medicine**

October 30-31, 1981. Lakes Club in Sun City,  
Arizona. Sponsor: Walter O. Boswell  
Memorial Hospital and Western Division  
American Geriatrics Society. Contact:  
Western Division of the American Geriatrics  
Society, 12630 N. 103rd Avenue, Ste 14B, Sun  
City, AZ 85351. Approved for Category 1  
credit.

## **NOVEMBER**

#### **First Annual Southwestern Poison Symposium**

November 6-7, 1981. Scottsdale Hilton Hotel,  
Scottsdale. Sponsor: U of A College of  
Medicine. Contact: Attn: Faith Carlisi-Smith,  
Office of Continuing Medical Education &  
Outreach, U of A Health Sciences Center,  
Tucson, AZ 85724. Approved for 10 hours of  
Category 1 credit.

#### **Advanced Cardiac Life Support Provider and Recertification**

November 10-12, 1981. Arizona Medical  
Association offices, Phoenix. Sponsor:  
ACEP, Az Affiliate Am. Heart Assoc., & ArMA.  
Contact: Beverly Richter, Arizona Medical  
Association, 810 West Bethany Home Rd.,  
Phoenix, AZ 85013.

#### **First Annual Arizona ACEP/EDNA Symposium - "The Unlucky Heart"**

November 13, 1981. The Holiday Inn, Phoenix  
Metrocenter. Sponsor: Arizona Chapter  
Emergency Physicians and Emergency  
Department Nurses Assoc. Contact: Beverly  
Richter, ACEP offices, 810 W. Bethany Home  
Road, Phoenix, AZ 85013. Category 1 CME  
credit has been applied for through ACEP  
and also towards the AMA's Physician  
Recognition Award.

#### **American College of Physicians/Arizona Society of Internal Medicine Regional Meeting**

November 13-14, 1981. Doubletree Inn,  
Tucson. Sponsor: American College of  
Physicians, U of A College of Medicine,  
Arizona Society of Internal Medicine.  
Contact: Paul J. Rutala, M.D., F.A.C.P., U of A  
Health Sciences Center, Dept. of Internal  
Medicine, Tucson, AZ 85724.

#### **Seeing Our Way Clear**

November 14, 1981. Arizona Biltmore,  
Phoenix. Sponsor: St. Luke's Hospital and  
Medical Center. Contact: Christine  
Campbell, St. Luke's Hospital and Medical  
Center, 525 N. 18th Street, Phoenix, AZ  
85006. Approved for Category 1 credit.



### **Clinical Seminar Series "Neurology"**

November 14, 1981. Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **Dean's Clinical Rounds**

November 16, 1981. U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **29th Annual Convention of the Medical Society of the United States and Mexico**

November 18-21, 1981. Tucson, Arizona. Sponsor: Medical Society of the United States and Mexico. Contact: Executive Secretary, 3161 North Pantano Road, Tucson, AZ 85715.

### **The Legal Hurt of Chronic Pain II**

November 19-20, 1981. The Registry Resort, Scottsdale. Sponsor: St. Luke's Hospital and Medical Center. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital and Medical Center, 525 North 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### **Male Sexuality Course for Professionals**

November 21, 1981. ASU Alhambra Center, Phoenix. Sponsor: Planned Parenthood. Contact: Carolyn Maxon, Planned Parenthood, Continuing Education Courses, 1301 S. Seventh Ave., Phoenix, AZ 85007. Category 1 credit has been applied for toward the ArMA CME certificate.

### **Soft Tissue Tumors**

November 21-23, 1981. McCormick Ranch Inn, Scottsdale, Arizona. Sponsor: Arizona Society of Pathologists. Contact: Grant A. Hertel, M.D., Program Chairman, Goods Samaritan Hospital, 1033 E. McDowell Road, Phoenix, AZ 85006.

### **The Adolescent Female**

November 28-29, 1981. Doubletree Inn, Scottsdale. Sponsor: U of A College of Medicine. Contact: Attn: Faith Carlisi-Smith, Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

## **DECEMBER**

### **Therapeutics and Pharmacology**

December 5, 1981. Arizona Health Sciences Center. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, Arizona 85724. Approved for Category 1 credit.

### **Surgical Oncology**

December 11-12, 1981. Arizona Health Sciences Center. Sponsor: U of A College of Medicine, and Am. College of Surgeons. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, Arizona 85721.

### **Workshops on Urologic-Radiologic Diagnosis**

December 11, 1981. Camelback Inn, Scottsdale. Sponsor: Maricopa County General Hospital. Contact: Alex Newman, M.D., Program Director, Dept. of Radiology, MCGH, 2601 E. Roosevelt St., Phoenix, AZ 85008. Approved for 8 hours of Category 1 credit.

### **Urologic-Radiologic Diagnosis**

December 12 & 13, 1981. Camelback Inn, Scottsdale. Sponsor: Maricopa County General Hospital. Contact: Alex Newman, M.D., Program Director, Dept. of Radiology, MCGH, 2601 E. Roosevelt St., Phoenix, AZ 85008. Approved for 14 hours of Category 1 credit.

### **Advanced Cardiac Life Support Provider & Recertification**

December 15-17, 1981. Arizona Medical Assoc. Offices, Phoenix. Sponsor: ACEP, Az Chapter Am Heart Assoc., & ArMA. Contact: Beverly Richter, ACEP, 810 W. Bethany Home Rd., Phoenix, AZ 85013.

## **1982**

## **JANUARY**

### **"Gastroenterology" Clinical Seminar Series**

January 9, 1982. Granda Royale Hotel, Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### **3rd Conference on Human Tumor Cloning**

January 10-12, 1982. U of A Cancer Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 Credit.

### **Trauma Care 82**

January 17-21, 1982. Alamos Resort, Scottsdale. Sponsor: John C. Lincoln Hospital & Lincoln Institute of Surgery and Trauma. Contact: Paul K. Halverson, Symposium Dir., Lincoln Institute of Surgery & Trauma, 9211 North 2nd St., Phoenix, AZ 85020. Category 1 CME credit has been applied for.

### **Advanced Trauma Life Support Course**

January 29-29, 1982. John C. Lincoln Hospital, Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

## **FEBRUARY**

### **2nd Annual ACEP Symposium - Resuscitation "Pitfalls, Pearls and Promises"**

February 3-5, 1982. La Posada Resort, Scottsdale. Sponsor: Arizona Chapter, ACEP. Contact: Beverly Richert, ACEP office, 810 W. Bethany Home Road, Phoenix, AZ 85013.

### **8th Annual Sports Medicine Symposium**

February 5-7, 1982. Holiday Inn Metrocenter, Phoenix. Sponsors: Arizona Medical Assoc., Arizoon Osteopathic Medical Assoc., Arizona Interscholastic Assoc. Contact: Nikki Mertz, ArMA, 810 West Bethany Home Rd., Phoenix, AZ 85013. Approved for 7 hours of Category 1 credit.

### **Clinical Seminar Series "Psychiatry"**

February 6, 1982. U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### **Southwestern Seminar on Neurological & Neuromuscular Disorders**

February 11-13, 1982. Main Auditorium, Az Health Sciences Center, Tucson, Az. Sponsor: University of Arizona College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### **International Cataract Surgery Symposium 1982**

February 15-17, 1982. The Alamos Resort, Scottsdale, Arizona. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 N. 18th St., Ste 105. Phoenix, Arizona 85006.

### **Pediatric Update 1982**

February 15-18, 1982. La Posada Resort Hotel, Scottsdale, Arizona. Sponsor: St. Joseph's Hospital and Medical Center, Dept. of Pediatrics. Contact: Ronald A. Christensen, M.D., Department of Pediatrics, St. Joseph's Hospital and Medical Center, 350 West Thomas Road, Phoenix, AZ 85013. Approved for 16 hours of Category 1 Credit.

### **Frontiers in Ophthalmology**

February 18-20, 1982. Arizona Biltmore, Phoenix. Sponsor: St. Luke's Hospital Medical Center. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital Medical Center, 525 N. 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### **Modulation & Mediation of Cancer By Vitamins**

February 23-26, 1982. U of A Cancer Center, Tucson. Sponsor: U of A College of Medicine. Contact: Mary Humphrey, Cancer Center Division U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per Category 1 credit.

### **Fifth Annual Mid-Winter Symposium in OB/GYN**

February 24-26, 1982. Scottsdale Hilton Hotel. Sponsor: Maricopa County General Hospital and Phoenix OB/GYN Society. Contact: The Secretary, Phoenix OB/GYN Society, 333 East Virginia, Ste 222, Phoenix, AZ 85004.

## MARCH

### Emergency Care Conference

March 1-3, 1982. Westward Look Resort, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour category 1 credit.

### Changes & Controversies in Pediatrics

March 4-7, 1982. Marriott Hotel, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson AZ 85724. Approved for hour per hour Category 1 credit.

### Advanced Trauma Life Support Course

March 5-7, 1982. Westward Look Resort, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medicine Education and Outreach, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### Ninth Annual Barrow Neurological Symposium

March 11-13, 1982. La Posada Inn Resort, Phoenix. Sponsor: St. Joseph's Hospital and Medical Center, Barrow Neurological Institute. Contact: Richard A. Thompson, M.D., 222 West Thomas Road, Phoenix, Arizona 85013.

## First Annual Arizona ACEP / EDNA Symposium

### "THE UNLUCKY HEART"

Friday, November 13, 1981

The Holiday Inn  
Phoenix Metrocenter  
2532 West Peoria Avenue, Phoenix, Arizona

Join us and learn the newest research in assessment, pharmacology, and invasive techniques now in use or in the near future to change the prognosis of the "Unlucky Heart."

Accreditation - Category 1 CME credit has been applied for through ACEP and also towards the AMA's Physician Recognition Award. CEU's have been applied for with AzNA and EDNA.

For additional information or brochure, contact: Beverly Richter, ACEP, 810 West Bethany Home Road, Phoenix, Arizona 85013.

# F

# RON

# TIERS IN

# OPHTHALMOLOGY

The 8th annual FRONTIERS IN OPHTHALMOLOGY will explore the latest advancements in ophthalmic care.

Featured topics and speakers will include:

CATARACT/IOL - Manus C. Kraff, M.D., Clinical Professor of Ophthalmology, University of Illinois.

CORNEA/RADIAL KERATOTOMY - Peter R. Laibson, M.D., Director of Cornea Services, Wills Eye Hospital, Philadelphia.

GLAUCOMA - Thomas J. Zimmerman, M.D., Ph.D., Professor of Ophthalmology, Pharmacology and Experimental Therapeutics, L.S.U. Medical Center.

NEURO-OPHTHALMOLOGY - Robert B. Daroff, M.D., Chairman, Department of Neurology, Case Western Reserve University.

OCULAR PLASTICS - Alston Callahan, M.D., FACS, President, Eye Foundation, Inc., Birmingham, Alabama.

RETINA/VITREOUS - Steven T. Charles, M.D., Associate Clinical Professor of Ophthalmology, University of Tennessee.

February 18-20, 1982

at the world-famous Arizona Biltmore Resort, Phoenix

Approved for Category I C.M.E. credit

Sponsored by the Prentice Eye Institute  
St. Luke's Hospital Medical Center

For additional information, call or write:

Christine Campbell, Medical Meeting Planner  
St. Luke's Hospital Medical Center  
525 N. 18th St., Phoenix, Arizona / (602) 251-8402



### **Clinical Seminar Series "Endocrinology"**

March 13, 1982. Granda Royale, Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### **1st Symposium on Hematologic Malignancies**

March 14-21, 1982. Keystone Lodge, Colorado. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### **St. Luke's Chest Symposium**

March 29-31, 1982. Arizona Biltmore, Phoenix. Sponsor: St. Luke's Hospital. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital Medical Center, 525 North 18th Street, Phoenix, AZ 85006. Approved for hour per hour Category 1 credit.

## **MONTHLY OR WEEKLY**

### **Shrine Medics Meeting**

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

### **Office Psychiatry for the Primary Provider**

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

### **Counter Transference Group**

Weekly, Thurs. 8-10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

### **Monthly Meeting of Tucson Radiologists**

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

### **Pediatric Grand Rounds**

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

### **Review of Forensic Pathology**

#### **Current Case, Special Topics**

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.

## **ARIZONA HEART INSTITUTE**

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

### **Clinical Conference Cardiovascular Medicine**

Third Tues., 5:15 p.m., second floor classroom

## **ARIZONA STATE HOSPITAL**

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

### **A.S.H. Psychiatric Grand Rounds**

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm., Contact: Dr. Conger & Staff

### **Clinical-Pathological Conference**

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

### **Medical Grand Rounds**

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.

## **BARROW NEUROLOGICAL INSTITUTE**

### **Medical Education**

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### **Neurology Teaching Conference**

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf. Room.

### **Neurosurgical Morbidity Conference**

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### **Neuro-ophthalmology Conference**

Mondays, 7:30 a.m. in 8th floor neurology conference room.

### **Spinal Injury Conference**

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conf. Rm.—a multidisciplinary review of admission by neurosurgeons, orthopedists, and rehabilitation specialists

### **Neuro-ophthalmology Conference.**

Weekly, 7:30 a.m., 8th floor conference Rm.

### **Neuropathology of Gross Specimens Conference**

Thursday, 7:30-8:30 a.m. in the Morgue.

### **Neurology-Neurosurgical**

Fridays, 8-9 a.m., First Floor Conference Rm.

### **Neuropathology or Neuroradiology Conferences**

Friday, 9 a.m., Neuropathology in Neuropathology Conference Rm., Neuroradiology in First Floor Conference Rm.

### **Neurorehabilitation Conference**

Tuesdays, noon, 8th Floor Conference Rm.

### **Neurosurgical Journal Club**

Saturdays, 9-11 a.m. in Eighth Floor Conference Rm.

## **WALTER O. BOSWELL MEMORIAL HOSPITAL**

10401 Thunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED.D., Director of Education.

### **Medical Department Continuing Medical Education**

4th Wednesday, 12 Noon, C119. May, July, Sept. & Nov.

### **Tumor Board**

Last Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept. & Nov.

### **Surgical Department CME**

4th Friday, 7 A.M., Educ. Center Classrooms I & II. Contact: Brian Updegraff, M.D.

## **CAMELBACK HOSPITAL**

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr., M.D.

### **Clinical Conference**

3rd Tuesday, 8-9 a.m.

## **DESERT SAMARITAN HOSPITAL**

1400 South Dobson Road, Mesa, Arizona, Contact: L.A. Rosati, M.D. Approved for category 1 credit.

### **CME Programs**

Weekly Tuesday, 7 p.m., Cafeteria-West End.

### **Clinical Conference - Dept. of Medicine**

Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch, Grande Rm.

### **OB/GYN Medical Staff Conference**

Weekly, Monday, 12:30-1:30 p.m. Grande Rm.

### **Pediatric Case Conference**

2nd. Friday, 12:30 p.m., Grande 2

## **DOCTORS HOSPITAL**

1747 East Thomas Road, Phoenix, Arizona 86016 Contact: Medical Staff Secretary for additional information.

### **Physicians Continuing Education Program**

1st Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

1400 N. Wilmont Road, Tucson, AZ 85712.  
Contact: Eric G. Ramsay, M.D. Approved for category 1 credit.

### Family Practice Department Meeting

1st Monday, 12 Noon, Contact: R. Grossman, M.D.

## FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA

1215 N. Beaver Street, P.O. Box 1268, Flagstaff AZ 86002. Contact: B. C. Hirschberg, M.D., CME Program Clinical Conference. Approved for category 1 credit.

### Interesting Case Conference

1st Tuesday, 12:30 P.M., Tollefson Rm.

### Clinical Conferences

Weekly Tuesdays, 12:30 P.M., Tollefson Rm.

### Tumor Board Case Conference

3rd Tuesday, 12:30 P.M., Hospital Conf. Rm.

### Mortality & Morbidity Conference

1st Thursday, 12:30 P.M., Hospital Conf. Rm.

## GOOD SAMARITAN HOSPITAL

1033 East McDowell Rd., Phoenix, AZ  
Contact: W. J. Howard, M.D. Approved for category 1 credit.

### Anatomical Path. & Cytology

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf Rm.

### Gynecological Section Conference

2nd Monday, 12:30-1:30 p.m., West Rm

### Monday Noon Conference

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### Mortality/Morbidity, Surgery Comm.

2nd Monday, 11:30-2:00 p.m., West Rm.

### Obstetrical Section Conference

1st Monday, 12:30-1:30 p.m., West Rm.

### Pulmonary Disease Grand Rounds

Weekly, 12:00-1:00 p.m., D-5 North

### Family Practice Conference

Weekly Tuesday, 12:00-1:00 p.m., Fam. Practice Conf. Rm.

### Pediatric Grand Rounds

3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul Bergeson, M.D.

### PM & R Noon Inservice

2nd & 4th Tuesday, 12 Noon, R-2 Conference Rm.

### Surgical Grand Rounds

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### Clinical Cancer Fourm

3rd Wednesday, 12:00-1:00 p.m., West Rm, Contact: John A. Bruner, M.D.

### Combined Cardiovascular & Family Practice Conf.

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5 North.

### Learning Disabilities

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

### OBGYN Dept. Review & Statistics

Weekly, 12:30-3:00 p.m., OBGYN Conf. Rm.

### Gynecological Pathology

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf. Rm.

### GI Radiology Conference

1st Thursday, 12:00-1:00 p.m., F151, Radiology Conf. Rm.

### Phoenix Ultrasound Soc. Meeting.

Medical Education Building. Contact. Dr Ben Ora

### Neurology Grand Rounds

Weekly Thursday, 9:00-10:00 a.m., D-5 North.

### Tumor Treatment Planning Conf.

2nd & 4th Thursdays, 12:00-1:00 p.m., F151 Radiology

### Joint Tumor Gyn Conference

2nd Friday, 12:30-1:30 p.m., West Rm.

### Medical Grand Rounds

Weekly Friday, 8:00-9:00 a.m., West Rm.

### Neuropathy Conference

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

### Psychiatry Grand Rounds

Weekly Friday, 11:30-1:00 p.m., East Rm.

## KINO COMMUNITY HOSPITAL,(THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact: Eric C. Ramsay, M.D., Approved for Category 1 credit.

### Attending's Hour

5th Monday, 12:30 p.m., Contact: J. Goldberger, M.D.

### Infectious Disease Conference

3rd Monday, 12:30 p.m., Contact: Barry Friedman

### Ophthalmology Conference

1st Monday, 12:30 p.m., Contact: Bruce Gillers, M.D.

### Psychiatric Conference

2nd & 4th Mondays, Contact: J. Santiago, M.D.

### Surgical Connference

Weekly Mondays, Contact: R. Fischer, M.D.

### Cardiology Conference

4th Tuesday, 12:30 p.m., Contact: B. Phibbs, M.D.

### Clinical Pharmacology Conference

5th Tuesday, 12:30 p.m., Contact: M. Katz, Clinical Pharm.

### Neurology Conference

1st & 3rd. Tuesday, 12:30 p.m., Contact: J. Laguna, M.D.

### Radiology Conference

2nd Tuesday, 12:30 p.m., Contact: M. Baker, M.D.

### Medical Surgical Grand Rounds

2nd Wed., 12:30 p.m., Contact: Chief Medical Resident

### Medical Conference

1st Wed, 12:30 p.m., Contact: Chief Medical Resident

### Cardiology Conference

1st Thursday, 12:30 p.m., Contact: B. Phibbs, M.D.

### Endocrine Conference

2nd Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

### GI Conference

4th Thursday, 12:30 p.m., Contact: C. Kanun, M.D.

### Mortality & Morbidity Conference

3rd. Thursday, 12:30 p.m., Contact: E. Munjack, M.D.

### OB/GYN Dept. Meeting

2nd Thursday, 2 p.m., Contact J. Wurzel, M.D.

### OB/GYN Pathology Conference

Weekly, Thursday, except 2nd, Contact: J Wurzel, M.D.

### OB/GYN Sonograph/X-ray Conference

4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

### Clinical Pathology

5th Thursday, 12:30 p.m., Contact. J Fleishman, M.D.

### Renal Conference

1st Friday, 12:30 p.m., Contact: T. Pence, M.D.

### Hematology Conference

2nd & 4th Friday, Contact. S. Ketchel, M.D.

### Rheumatology Conference

3rd Friday, 12:30 p.m., Contact: J. Goldberger, M.D.

### Chest Conference

5th Friday, 12:30 p.m., Contact: D Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008

### Continuing Medical Education Program

2nd & 4th Wednesday, 12:30 p.m., Conference Rms.

### Tumor Board

1st & 3rd Monday, 12:30 p.m., Conference Rooms

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008. Contact: Leonard Tamsky, M.D.

### Medicine Conference

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

### Chest Surgery Conference

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

### Hematology Conference

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

### OB/GYN Dept. Grand Rounds

Weekly Tuesday, 12 Noon, Santa Cruz Room

### Obstetrical Problem Conference

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

### Orthopedic Conference

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

### Pediatric Grand Rounds

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

### Urology Discharge Planning Conference

Weekly, 11:30 a.m., Station 42

### Hand Surgery Conference

Weekly Wed, a.m., Santa Cruz Rm.

### Neurosurgery Discharge Planning

Weekly Wed., 1:30 p.m., Station 42.

### OB/Neonatology Seminar

Weekly, Wed. 7:30 a.m., Yavapai Rm.

### Clinical Psychiatric Conference

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

### Surgery Conference

Weekly Wed., 7-8 a.m., Surgical Dept.

### Current Concepts in Medicine & Surgery

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

### Cardiology Conference

Weekly Thurs., 2 p.m., Santa Cruz Rm.

### OB/GYN Resident Conference

Weekly Thurs., 12 p.m., Yavapai Rm.

### GYN Endocrine Seminar

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

### OB/GYN Surgical Pathology Conf.

Weekly Friday, 7:30 a.m., Yavapai Rm.

### Orthopedic X-Ray Conference

Weekly Friday, 7:30 a.m., Santa Cruz Rm.



## MESA LUTHERN HOSPITAL

525 West Brown Rd., Mesa, Arizona 85201.  
Contact: Medical Staff Office.  
**Continuing Medical Education Programs**  
Tuesdays, 6:30 p.m., Ocotillo Rm.

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.  
Contact: Leonard M. Lapenson, M.D.,  
Approved for category 1 credit.  
**Clinical Conferences**  
1st, 2nd & 3rd Tuesdays, 12 noon, 5th floor  
auditorium.  
**CPC or Medical-Surgical Forum**  
4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.  
Contact: Leland L. Fairbanks, M.D.,  
Approved for category 1 credit.  
**Pediatric Grand Rounds**  
1st Tuesday, 7:30-8:30 a.m., Contact: D.  
Randall, M.D.  
**Clinical Staff Teaching Conference, Rm. A.**  
Wed. Weekly, 8:00 a.m.  
**Otolaryngology Grand Rounds**  
4th Wednesday, 4-5 p.m., Conference Rm. A,  
Contact: N. Wendell Tood, M.D.  
**Family Practice/Emergency Room Teaching  
Conference**  
Thursday Weekly, 7:30-8:30 a.m., Conf. Rm.  
A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:  
George Scharf, M.D. Approved for category 1  
credit.  
**Monthly Medical Education Seminar**  
3rd Monday, 6:30 p.m., Kiva Conf. Rm.  
**Clinical Conferences**  
Weekly Tuesday, 12:30 p.m., Kiva  
Conference Rm.  
**Tumor Board Conference**  
Weekly Friday, 12 p.m., Kiva Conf. Rm.  
Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251.  
Contact: W. S. Williams, M.D., Approved for  
category 1 credit.  
**Family Practice Conference**  
1st Monday, 12:30 p.m., Doctors' Lounge

**Emergency Medical Services Conference**  
2nd Monday, 12:30 p.m., Doctors' Lounge  
**Neurology/Neurosurgery Conference**  
3rd Monday, 12:30 p.m., Doctors' Lounge  
**CPC Conference**  
4th Monday, 12:30 p.m., Doctors' Lounge  
**Pediatrics Conference**  
5th Monday, 12:30 p.m., Doctors' Lounge  
**Pulmonary Conference**  
1st Tuesday, 12:30 p.m., Doctors' Lounge  
**Cardiology Conference**  
2nd Tuesday, 12:30 p.m., Doctors' Lounge  
**Surgery Conference**  
3rd Tuesday, 12:30 p.m., Doctors' Lounge  
**Resident Grand Rounds**  
4th Tuesday, 12:30 p.m., Doctors' Lounge  
**Medical Subspecialties**  
5th Tuesday, 12:30 p.m., Doctors' Lounge  
**Urology Conference**  
3rd Thursday, 12:30 p.m., Doctors' Lounge  
**Tumor Conference**  
4th Thursday, 12:30 p.m., Doctors' Lounge  
**GI/Med/Surg/Radiology Conference**  
2nd Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85013.  
Contact: Joseph C. White, M.D.  
**OB/GYN Section Conference**  
3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor  
Conf. Rm.  
**Genetics Conference**  
Weekly Monday, 12:30 p.m., Pediatric  
Department.  
**Pediatric Rounds**  
Weekly Monday, Wed. & Friday, 10:30 a.m.,  
Pediatric Department.  
**Pediatric Grand Rounds**  
4th Tuesday, 7:30-8:30 a.m., Contact: J. Kipp  
Charlton, M.D.  
**ECG Conference**  
Weekly Tuesday, 12:30 p.m., Pediatric  
Department.  
**Medical Grand Rounds**  
Weekly Wednesday, 8 a.m., 1st Floor Conf.  
Room.  
**Visiting Professor Formal Presentation**  
Weekly Thursday, 8 a.m., PIMC  
**Visiting Professor Informal Presentation**  
Weekly Thursday, 9:30 a.m., 1st floor Conf.  
Rm.  
**Visiting Professor Formal Presentation**  
Weekly Thursday, 12:30 p.m., PIMC  
**Nephrology Conference**  
Weekly Fridays, 12:30 p.m., Pediatric  
Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact:  
Eric G. Ramsay, M.D. Approved for Category  
1 credit.  
**Family Practice Department Meeting**  
3rd Tuesday, 12 p.m., Contact: Wm.  
Moteforte.  
**Ophthalmology Morbidity/Mortality Conf.**  
4th Tuesday, 12:15 p.m., Contact: Kim  
Sowards.  
**Current Concepts in Medicine**  
Weekly, Tuesday, 12 p.m., Auditorium.  
**Hematology-Oncology Conference**  
Last Wednesday, 12:15-1:15 p.m., Contact: S.  
Salmon. M.D.

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact:  
Gerald L. Hansbro, M.D.

**Cardiac Conference**  
Weekly Monday, 12:15 p.m., Auditorium  
**Surgery Conference**  
1st Tuesday, 12:15 p.m., Auditorium  
**Emergency Medicine Conference**  
1st Wednesday, 12:15 p.m., Auditorium  
**Cardiovascular-Thoracic Record Review**  
3rd Wednesday, 12:15 p.m., Auditorium  
**Psychiatry Conference**  
3rd Thursday, 7 a.m., Auditorium  
**Combined Medical General Practice  
Conference**  
1st Friday, 12:15 p.m., Auditorium  
**Toxicology Grand Rounds**  
2nd Friday, 7:30 a.m., Auditorium  
**Ophthalmology Conference**  
1st Saturday, 8:30 a.m., Auditorium.

## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W. St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.  
**Monthly Specialty Conference-Dept. of  
Surgery**  
1st Monday, 7:30 a.m., Century Rm. A.,  
Contact: Med. Staff Office.  
**Grand Rounds: Medical Surgical, Family  
Practice, Pathology, Radiology**  
Weekly Thursday  
**Emergency Medicine Lectures**  
Weekly Thursday, 8 a.m., Century Room A.  
**Mental Health Update**  
1st Friday, 11:30-1:00 p.m., Century Rm. A.  
**Cardiology Conference**  
Weekly Friday, 8:00-9:00 a.m., Century Rm.,  
Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.  
Contact: Eric G. Ramsay, M.D. Approved for  
Category 1 credit.  
**Cardiology Conference**  
Weekly Monday, except last, 12 Noon,  
Contact: J. Fernandez, M.D.  
**Dermatology Conference**  
4th Monday, 5:00 p.m., Contact: R. Miller,  
M.D.  
**Endocrinology Conference**  
Last Monday, 12 p.m., Contact M. Parker,  
M.D.  
**Perinatal Conference**  
2nd Monday, 7:30 p.m., Contact: J. Lohman,  
M.D.

**Chest Conference**  
 3rd Tuesday, 12 noon, Contact: William Nevin, M.D.

**Hematology Conference**  
 4th Tuesday, 12 Noon, Contact: M. Boxer, M.D.

**Infectious Disease Conference**  
 2nd Tuesday, 12 noon, Contact: B. Friedman, M.D.

**Nephrology Conference**  
 1st Tuesday, 12 noon, Contact: Dr. Seltzer.

**Orthopedic Conference**  
 1st Tuesday, 8:00 p.m., Contact: Jay Katz, M.D.

**Pediatric Grand Rounds**  
 1st & 3rd Tuesday, 12:30 p.m., Contact: Dr. Lightner.

**Cardiac Cath. Conference**  
 2nd & 4th Wednesday, 5:15 p.m., Contact: L. Buckels, M.D.

**Clinical Pathology Conference**  
 Last Wednesday, 8:00 a.m., Contact: Dr. Fuchs.

**Family Practice Meeting**  
 2nd Wednesday, 12:30 p.m., Jan., April, July, & Oct. Contact: C. Mangelsdorf, M.D.

**Medical Conference**  
 Weekly Wednesday, 8:00 a.m., Contact: M. Fuchs, M.D.

**Neurology-Neurosurgery Conference**  
 Weekly Wednesday, 12 noon, Contact: H. W. Buschsbaum, M.D.

**Dermatology Conference**  
 1st Thursday, 12 noon, Contact: R. Friedman, M.D.

**Neuroradiology Conference**  
 Weekly Thursday, 5:00 p.m., Contact: N Komar, M.D.

**Tumor Conference**  
 Weekly Thursday, 12 noon, Contact: Dr. Hastings.

**G—I Conference**  
 Weekly Friday, 12 noon, Contact: C. Krone, M.D.

**Interhospital Nuclear Medicine Conference**  
 Weekly Friday, 7:15 a.m., Contact: S.V. Hilts, M.D.

**OBGYN Conference**  
 1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

**OBGYN Pathology Conference**  
 3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

**Surgical Department Conference**  
 Weekly Saturday, 7:30 a.m., Contact: Dr. Hastings, TMC.

**Surgical Grand Rounds**  
 Weekly Saturday, 9:00 a.m., UAHSC-Room 5403, Contact: Dr. Norton.

**Anesthesiology Basic/Clinical Sciences Lectures**  
 Weekly Thursday, 4-5 p.m., Room 5403

**Anesthesiology Case Discussion**  
 Weekly Wed., 7:00 a.m., AHSC, Dining Rm. C&D.

**Anesthesiology Resident Presentation**  
 1st Monday, 4-5 p.m., AHSC Dining Room, C&D, Contacts: Drs. Otto & Zehngut.

**Cancer Center Tumor Board Seminar**  
 3rd Tuesday, Monthly, 12-1 p.m., HSC Auditorium, Contact: Cancer Center

**Cardiac Catheterization Conference**  
 Weekly Friday, 4:00 p.m., Contact: Dr. Temkin.

**Cardiology Research Conference**  
 Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

**Tucson Cardiovascular Society**  
 1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

**Clinical Immunology, Allergy & Rheumatology Rounds**  
 Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

**Cerebrovascular Disease Conference**  
 Mondays, 5-6 p.m., Weekly, Rm. 5505. Contact: Jerry Goldston, M.D., Department of Surgery.

**Dermatology Rounds**  
 Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

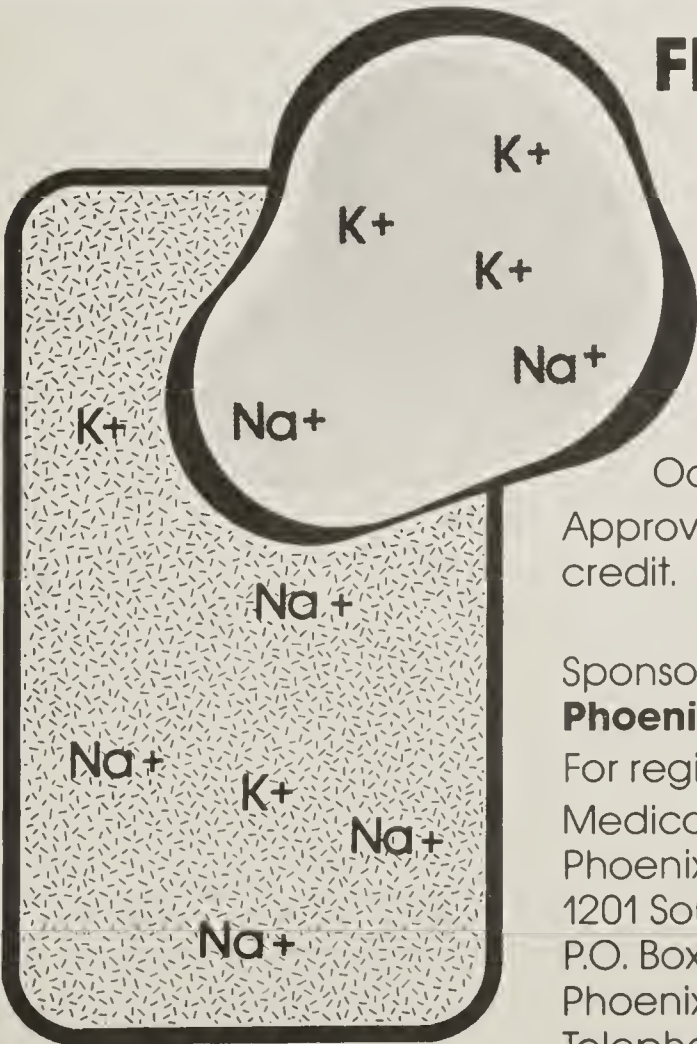
**Endocrinology Seminar**  
 Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

**Emergency Medicine Grand Rounds**  
 Tuesdays, 9 a.m., AHSC, Contact: Dr. Sanders.

**U OF A HEALTH SCIENCES CENTER**

Sponsor: U of A College of Medicine, Tucson, AZ 85724. Robert M. Anderson, M.D., Dir. of CME. Contact: See below. Approved for category 1 credit.

**Anesthesiology Board Review Conference**  
 2nd & 4th Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contacts: Dr. Vaughn & Kryc.



**FLUID, ELECTROLYTE AND ACID-BASE BALANCE**

a practical review and update  
 by  
**Harry F. Weisberg, M.D.**

Clinical Professor of Pathology Medical College of Wisconsin  
 Associate Director Department of Pathology Mt. Sinai  
 Medical Center Milwaukee, Wisconsin

October 24, 1981

Approved for six hours of Category 1 CME credit.

Sponsored by the  
**Phoenix Memorial Hospital Foundation**  
 For registration information contact:  
 Medical Staff Office  
 Phoenix Memorial Hospital  
 1201 South Seventh Avenue  
 P.O. Box 21207  
 Phoenix, Arizona 85003  
 Telephone (602) 258-5111, ext. 331



**GI Pathology Conference**  
4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

**GI Radiology Conference**  
2nd. & 4th Mondays, 7:30 a.m., AHSC, Contact: Dr. T. Hunter

**Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact: Dr. Manning

**Hematology-Oncology Clinical Conference**  
1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact: S. Salmon, M.D., Dept. of Internal Medicine.

**Medical Grand Rounds**  
Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

**Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

**Neuropathology Review Conference**  
Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

**Neuroradiology Conference**  
Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

**Neuromuscular Journal Conference**  
2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

**Neuropathology Case Review**  
Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

**Neurosciences Seminar**  
Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

**Nuclear Medicine**  
Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

**Ophthalmology Grand Rounds**  
3rd Friday, 7:30 a.m., AHSC, Contact: Dr. J. Herschler

**Orthopedic Rounds**  
Saturday, 8:00 a.m., Contact: Dr. Peltier.

**Pain Conference**  
3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

**Pathology Seminar**  
Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

**Tucson Pathologist Conference**  
1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

**Pediatric Grand Rounds**  
2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

**Pediatric Problem Patient Conference**  
Weekly Wed., 8:00 a.m., Contact Dr. Walson

**Pediatric Research Forum**  
Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

**Pediatric Specialty Conference**  
Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

**Psychiatric Grand Rounds**  
Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

**Psychiatric Monthly Case Conference**  
2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

**Pulmonary Rounds**  
Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

**Chest Radiology**  
Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

**Neuroradiology Teaching Conference**  
Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

**Radiation Oncology Planning Conference**  
Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

**Radiology Interesting Case Conference**  
Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

**Gastrointestinal Radiology**  
Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

**Radiology-Rheumatology Conference**  
Weekly Thursday, 7:45 a.m., UAHSC, Library Rm.1535C.

**Uroradiology (Genitourinary Radiology)**  
2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

**Renal Pathology Conference**  
1st & 3rd Thurs., 11:30 a.m., Contact: Dr. Nagle.

**Residents Noon Conference**  
Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact: Dr. A. Greensher.

**Resident's Conference**  
Wednesday, weekly 5-6 p.m., Diag. Radiology Conf. Rm.

**Surgical Grand Rounds**  
Saturdays, 9:00 a.m., Rm. 5403, AHSC, Contact: Dr. Wangenstein.

**Surgical Morbidity & Mortality Conference**  
Weekly Wed., 8:00 a.m., Contact: Dr. Wangenstein.

**Vascular Surgery Conference**  
Weekly Tuesdays, 5-6 p.m., AHSC Dining Room E.

**Joint Thyroid Conference**  
1st & 3rd Wed., Contact: S. C. Werner, M.D.

**Trauma Conference**  
Monday, 4:00 p.m. UAHSC, Rm. 4410, Contact: Dr. Peltier.

**Toxicology Conference**  
Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes Section.

**Tucson Ultrasonography Group**  
Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

**General Urology Conference**  
Weekly Thursday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix, AZ 85012. Contact: Alfred Heibrunn, M.D. Approved for Category 1 credit.

**GI X-Ray Clinical Correlation Conf.**  
1st & 3rd Monday, 1 p.m., Rm. C435, Contact: Drs. Sanowski, & Nielsen.

**Medical/Surgical GI Conference**  
1st & 3rd. Mondays, 3 p.m., Rm. 3134, Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext 493.

**GI Pathology Conf.**  
2nd. & 4th Monday, 1 p.m., Path Conf. Rm, Contact: Dr. Sanowski..

**GI Grand Rounds**  
Weekly Tuesday, 1 p.m., Contact: Drs. Sanowski, Kozarek & Partyka

**Cancer Symposium**  
Weekly Wed., 1 p.m., T-5, Contact: Dr. Byrne, Ext. 426.

**Housestaff Pulmonary Disease Teaching Conf.**  
Weekly Wed., 3-4 p.m., Contact: Dr. Rohwedder, Ext. 388.

**Medical Surgical Chest Conference**  
1st & 3rd Thursday, Contact: Dr. Rohwedder or Dr. Gill.

**Cardiology Conference**  
2nd Thursday, 1 p.m., Rm. T-5.

**Consultant Rounds**  
1st Thursday, 1:30 p.m., Contact: Dr. Harlan

**Consultant Rounds**  
2nd Thursday, 11:00 a.m., Contact: Dr. Schaffner

**Consultant Rounds**  
4th Thursday, 8:00 a.m., Contact: Dr. Severino

**Medical Service Grand Rounds**  
Weekly Friday, 11 a.m., Contact: Dr. Zeller

**GI Resident Conference**  
Weekly Friday, 1:00 p.m., D446, Contact: Drs. Grobe, Phelps, Sanowski and Kozarek.

**Surgical Journal Review & Videotape Session**  
Weekly 1 p.m., Room 3134.

**Endocrinology Seminar**  
1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm. N318, Contact: Dept. of Internal Medicine.

**Grand Rounds**  
Weekly, Thursday, 11 a.m., Bldg. 107, Contact: J. Fitzharris, D.O.

**Vascular Radiology, Interesting Case Conf.**  
Weekly Thursday, 12:00 noon.

**Neurology Grand Rounds**  
Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed below. Approved for category 1 credit.

**Medical Rounds**  
1st & 3rd Thursdays, 10:00 a.m.-2:30p.m.

**Surgical Rounds**  
4th Thursday, 10 a.m.-2:30 p.m.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723. Contacts listed below. Approved for category 1 credit.

**Medical Surgical Chest Conference**  
Weekly Tuesday, 2 p.m., Contact: Dr. Young

**Medical Grand Rounds**  
Weekly Wed., 12-1:00 p.m., VA Hospital Staff Conf. Rm. & (AHSC), Contact: Jay Smith, M.D.

**Surgical Grand Rounds**  
Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

**Radiology Conference**  
1st Tuesday, 7:00 a.m.  
**Operation Outreach**  
2nd Tuesday, 6:30 p.m.  
**Pathology Conference**  
4th Tuesday, 7:00 a.m.  
**Operation Outreach**  
2nd Wednesday, 7:00 a.m.



The treatment of critically injured patients demands a repertoire of highly specialized skills and training. Are you, and the people you work with, up on the latest techniques?

Attend Trauma Care '82, January 17-21, and open your mind to this innovative and crucial dimension of emergency medicine. This national symposium is sponsored by John C. Lincoln Hospital and Lincoln Institute of Surgery & Trauma in Phoenix. The Lincoln trauma team approach is acclaimed one of the most innovative and progressive in the West.

Trauma Care '82 will provide an educational and enlightening forum for the exchange of ideas and methods on this dynamic aspect of emergency care. You'll learn about the most current trends in patient transport, team communication, neuro management in the I.C.U., and much more. There will be lectures, panel and small discussion groups and creative problem-solving sessions. The agenda is filled with noted national authorities in the field of trauma care, as well as an impressive roster of speakers from the staff of the John C. Lincoln Hospital Trauma Center.

In addition to all this, the American College of Surgeons is sponsoring a special Advanced Trauma Life Support Course, January 15-16, prior to the symposium (limited availability).

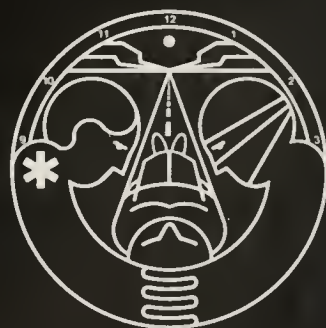
And what better setting could there be for this spectacular event than the great Southwest? Few places can boast its grandeur, or its warm winter climate. You'll stay at the luxurious new Alamos Resort in Scottsdale, a city that blends Old West charm with cosmopolitan chic. Spouses will be treated to a fun program of touring, shopping and sight-seeing. And you can top off your trip with a post-symposium jaunt to Mexico!

# There's a whole new world of trauma medicine. Are you ready to brave it?



Be a part of medical history in the making. Spend a week in the glorious Arizona desert while you're doing it! Reserve your place now for Trauma Care '82, one of the most important professional conferences of the year.

Call collect to Paul K. Halverson, Symposium Director at (602) 943-3641. Or write to the address below for all the details.



## TRAUMA CARE

Jan 82

John C. Lincoln Hospital  
and Trauma Center  
9211 North 2nd Street  
Phoenix, Arizona 85020



## **INSTITUTE FOR HUMAN SERVICES, INC.**

**Drug Abuse Treatment Unit  
St. Luke's Hospital Medical Building  
421 North 18th Street, Suite 103  
Phoenix, Arizona 85006  
(602) 257-8089**

*Henri A. Moyal, M.D., Medical Director • Harriette Lurie, Drug Abuse Coordinator*

- The Drug Abuse Treatment Unit provides specific care for individuals addicted to narcotics, either street drugs or major pain relieving drugs.
- The program's goals are to provide awareness and insight that facilitate psychological adjustment and allow the patients to meet personal and social responsibility and eventually to achieve a drug free state.
- Our services include psychotherapy: individual, family, marital and group. Inpatient care is available through St. Luke's Hospital facilities.
- For further information regarding the Drug Abuse Treatment Unit, please call our offices at 257-8089.

# **COMPUTED TOMOGRAPHY OF THE HEAD**



## **CNS Computed Neurological Scanning Center**

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207•  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

# WE PRINT WITH PRIDE



**THE ARIZONA MEDICAL ASSOCIATION**

*Offers*

**SUBSTANTIAL SAVINGS TO MEMBERS**

**Call or Write "Press" Preston  
Printing Department  
810 West Bethany Home Road  
Phoenix, Arizona 85013**

**Phoenix Members  
Telephone 246-8901**

**Tucson Members  
Ask Operator for Enterprise 265**

**All Other Members  
Call Collect 246-8901**



# sponsored group insurance

As a member of the Arizona Medical Association, you can take advantage of life, health and accident insurance selected to meet your needs, with the savings available through group insurance.

The Arizona Medical Association has provided its members with sponsored insurance programs for over 25 years. The programs currently available are: disability, term life (for members and their spouses), defendant's reimbursement, accidental death and overhead expense.

Companies and policies are selected to provide coverage and service that meets a professional's needs and standards.

The Arizona Medical Association provides supervision of the administration of these programs as needed to insure that they continue to merit your support.

## ARIZONA MEDICAL ASSOCIATION



life, health & accident insurance

administered by

HEALTH AGENCIES OF THE WEST, INC.

local service by

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200, Phoenix, Arizona 277-6672  
or 630 Craycroft, Tucson, Arizona 85711 745-0793



# *Why do our clients Send us Champagne?*

*Why? Because in the world of Anesthesia everyone is grateful for service beyond the call of duty.*

*And that's what we're all about.*

*Yes, It's true we do billing. Last year alone, We sent out more that \$7,000,000.00 In new Anesthesia Bills.*

*Yes, We do put Anesthesiologists in touch with Major Groups. And Yes, We stay in touch with Hospitals who need Anesthesia services.*

*But that's only part of the story. We also act as Consultants. We know the Anesthesia Business. We know Arizona Hospitals and Groups. And we have that "Sixth Sense" That tells us when a situation is sound.*

*At The Anesthesia Office, Inc. We stay with every Anesthesiologist, Using our talents to insure his success and satisfaction in private practice.*

*And that's why we always get Champagne.*



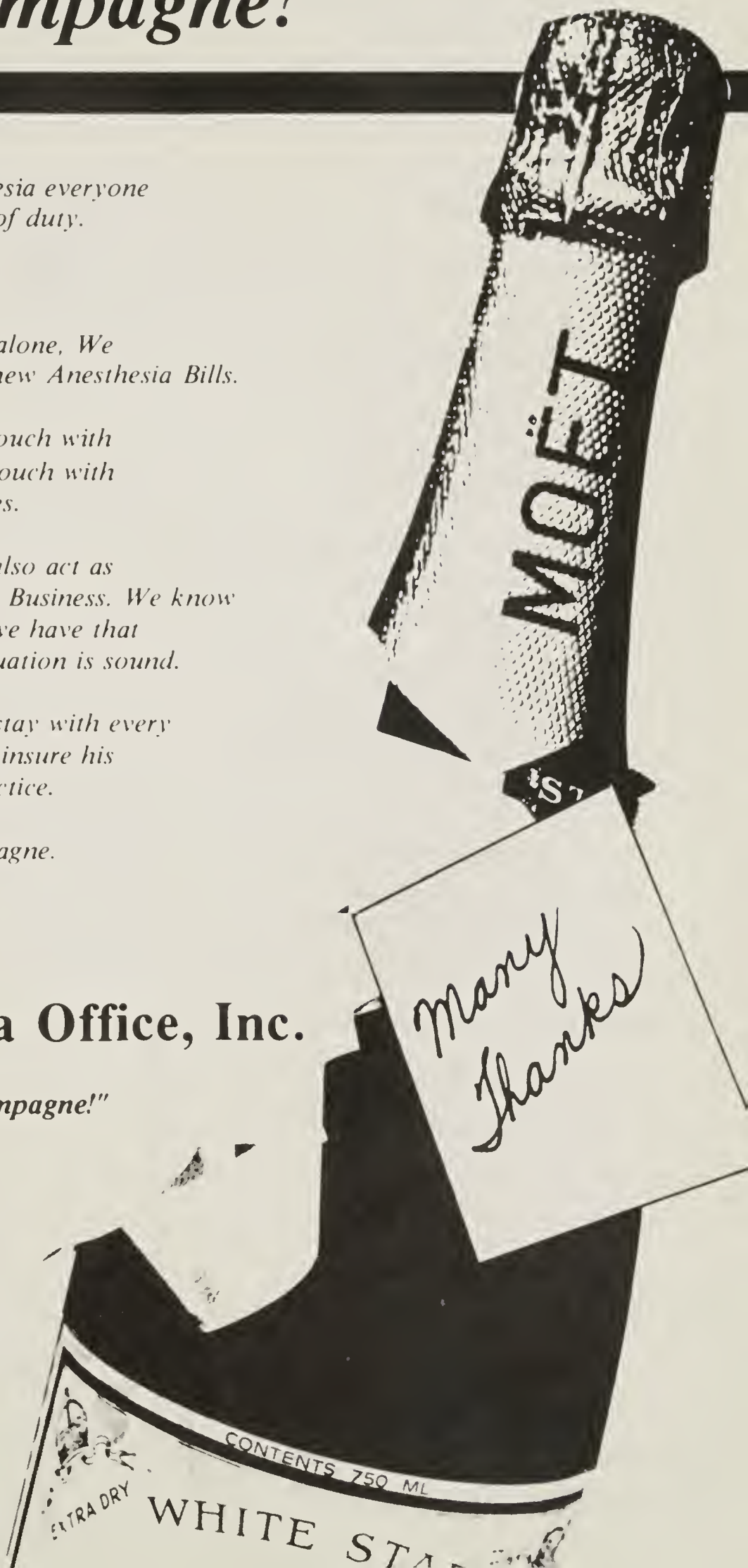
**The Anesthesia Office, Inc.**

*"The Office That Earns Their Champagne!"*

## **Main Office**

Post Office Box 39429  
Phoenix, Arizona 85069

**(602) 242-1908**





# Classified

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R.N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**

At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People

70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090



**THEY HAVE A  
FINE  
REPUTATION**

**House of Mailings**  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708

*Tired of all that money going out?*

**For a competitive Quote on:**

- Physicians & Surgeons Malpractice •
- Office Package •
- Automobile •
- Homeowners •



## PHOENIX-AMERICAN INSURANCE AGENCY

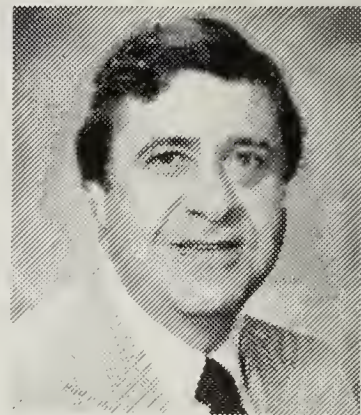
1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*

## Louis Jacob

General Agent  
10210 N. 32nd Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



**We Want You With Us**



## L. Louis Jacob Agency

Complete Insurance Services  
Call Us for an Auto Quote

## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### TUCSON IS GROWING

Opportunities in primary care and subspecialties in Rheumatology, Endocrinology, and Infectious Disease are present. Office space in proximity to new hospital still available at best prices in town. Grow with us with team spirit. Send inquiries to Dr. Jim Belitsos - c/o Desert Life Medical Plaza, 2001 West Orange Grove Road, Suite 202, Tucson, Arizona 85724.

### PRIVATE GROUP PRACTICE:

Psychiatrist, board certified or eligible, to join private group practice in metropolitan Phoenix area. Three office locations with mental health services for adults and children ranging from crisis intervention to analytically oriented outpatient treatment. Hospital work and community consultation available, medical consults with nonmedical therapists within group. Inquiries and resumes should be directed to Stephen D. Miller, ACSW, 6148 North 7th Street, Suite B, Phoenix, Arizona 85014. (602) 266-9727.

**X-RAY TECHNICIAN**

Experienced, ARRT and state certified. Seeks position with orthopaedic surgeon or orthopaedic group in private office. Will consider relocating. Salary desired \$1000. to \$1200. per month. Contact: Arthur Seabrey, R.T., 4823 East Brill, Phoenix, Arizona 85008. (602) 275-9407.

**FAMILY PRACTICE:**

Seeking Family Practice oriented physicians to work in new clinic setting in rural Arizona. Excellent financial benefits, educational benefits, vacation, etc. Choice locations available; a new and healthy approach to Rural Health Care Management. Rainbow Health Services, Inc. Contact Herb Macey, P. O. Box 2979, Globe, Arizona 85501 or (602) 425-3056.

**HELP SOUTHERN ARIZONA  
GENERAL PRACTITIONER**

finds her practice full after only 8 months. Now seeking associate interested in all aspects of rural family medicine including ICU and heavy OB. Minimum guarantee, office space, relocation expenses, other fringe benefits. Reply: Nancy Miner, Box 4058, Brentwood, TN 37027 (615) 377-1011

**UNIVERSITY TRAINED GENERAL  
SURGEON**

Currently doing a fellowship in Vascular Surgery seeks practice opportunities in General/Vascular Surgery. Please reply to: Ruben J. Delgado, M.D., Spring Ridge M-26, Whitehall, Pennsylvania 18052.

**REAL ESTATE**

**ALL NEW DELUXE SUITES**

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

**SKI SUNRISE**

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

**OSBORN MEDICAL CENTER**

444 West Osborn Road. A high quality medical building in an excellent Central Corridor location near St. Joseph's Hospital has full service office suites available for 1-4 doctor practices at competitive rates. Attached parking garage for doctors and staff, radiology and retail pharmacy on premises. For details call H. Higgins, Manager. (602) 277-2993.

**PROFESSIONAL OFFICE  
BUILDING AVAILABLE**

For Lease: 10820 Oakmont Drive, Sun City, Arizona (Rear of Grand Center Shopping Center, 107th Avenue and Grand Avenue.) 1430 Square Feet - Newly Decorated. One story Building. Ground level entrance. Very lucrative area. Reasonable. Call: (602) 979-7486, 8:00 a.m. to 4:30 p.m., or (602) 977-5992, Noon to 9:00 p.m.

**MEMORIAL MEDICAL  
OFFICE BUILDING**

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

**MEDICAL SUITES FOR LEASE**

Medical office space available for lease, with suites ranging from 718-1648 square feet, in the North Phoenix Medical Center, 9200 North Third Street, adjacent to John C. Lincoln Hospital and Trauma Center. Reasonable rental rates are offered with flexible lease terms and leasehold improvement allowance. For further information, contact Harold Kennedy, Association Administrator, John C. Lincoln Hospital and Trauma Center, 9211 North Second Street, Phoenix, Arizona 85020, or call (602) 943-2381, Ext. 1201.

**SATELLITE OFFICE**

Bell Road location in northwest Phoenix. Who will be serving your patients from the far northwest area three years from now. Should your practice consider adding an additional office in this excellent growth area Write Westbell Partnership, 13821 North 35th Drive, Phoenix, Arizona 85023, or phone. (602) 269-7541.

**BEAUTIFUL CONDOMINIUM  
Condominios Pilar  
San Carlos Bay, Mexico  
For Rent**

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

**BELL ROAD LOCATION**

Fast growing northwest area, frontage on Bell Road which is major arterial for entire north side of Phoenix. New 31,000 sq. ft. Professional Building with fountains, courtyard, and garden atmosphere. Four miles from Sun City, yet located among several large high technology employers (Sperry, Honeywell, Digital Systems, General Telephone and ITT). Many young growing families in the area. Convenient to new hospital facility at 55th Avenue and Thunderbird as well as Greenway and Bell Road Emergicenters. An opportunity to get into a really first class location in an outstanding area. Write Westbell Partnership, 13821 North 35th Drive, Phoenix, Arizona 85023, or phone: (602) 269-7541.

**PINETOP MOUNTAIN CABIN -  
FOR RENT**

White Mountain summer home. Ideal now for fall activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days. 289-5081 evenings.

**FLAGSTAFF OFFICE AVAILABLE  
FOR RENT**

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

**WANTED:**

Exercise Treadmill for cardiac stress testing. Must be in good condition. Reasonable. Phone: (602) 266-4469.



## INDEX TO ADVERTISERS

ACEP/EDNA Symposium ..... 795  
 The Anesthesia Office, Inc. ....805  
 Arizona Laminating .....753  
 Ben-Ora Imaging Ltd. ....744  
 Blue Cross/Blue Shield ..... 746  
 Boots Pharmaceuticals  
     Ru-Tuss .....747, 748, 749, 750  
 Burroughs Wellcome  
     Zyloprim .....751  
 Camelback Hospital .....752  
 Classified Ads .....806, 807  
 Computed Neuorological Scanning Center .....802  
 Doctors Central Directory .....806  
 Eli Lilly & Co.  
     Ceclor ..... 745  
 Health Agencies of the West .....804  
 House of Mailings .....806  
 Institute for Human Services ..... 802  
 Louis Jacobs .....806

Janssen Pharmaceutica  
     Nizoral .....742, 743  
 John C. Lincoln Hospital .....745, 801  
 Merrell Dow Pharmaceuticals  
     Tenuate .....786, 787  
 Mica Insurance Co. ....755  
 National Medical Enterprises .....753  
 Phoenix/American Insurance .....806  
 Phoenix Memorial Hospital .....799  
 Roche Labs  
     Limbital .....Second Cover,739,740  
     Librax .....784, 785  
     Valium .....Third Cover, Fourth Cover  
 Roswell Bookbinding .....753  
 Danny T. Sievert  
     Insurance .....806  
 Smith Kline and French  
     Dyazide .....783  
 St. Luke's Hospital ..... 795  
 Tippetts & Echols, P.C. .... 754  
 Valley National Bank ..... 741  
 Wickenburg Inn .....740



# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

(ISSN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

## SEMINARS IN CONTINUING EDUCATION

### CARDIOLOGY

- Clinical Utility of Serum Digoxin Levels .....828  
*Charles Katzenberg, M.D., et al*

- Editorial Comment..... 831  
*Kenneth B. Desser, M.D.*

### CHEST MEDICINE

- A Case of Unilateral Neurogenic Pulmonary Edema ..... 832  
*Nathan W. Goff, M.D., et al*

### GASTROENTEROLOGY & LIVER DISEASE

- Skeletal Fluorosis from Eating Soil .....833  
*Jeffrey R. Fisher, M.D., et al*

### MEDICAL GENETICS

- Recent Advances in Cancer Cytogenetics ..... 836  
*Jeffrey M. Trent, Ph.D.*

### NEUROLOGY

- Computed Tomography in the Diagnosis of Lumbar Disc Herniation ..... 839  
*Ronald D. Hanson, M.D.*

### ONCOLOGY

- Prevention of Chemotherapy-Induced Nausea and Vomiting in Patients with Cancer ..... 843  
*Matti S. Aapro, M.D.*

### PSYCHIATRIC DISORDERS

- Virtue ..... 845  
*William B. McGrath, M.D.*

### SURGERY

- Microvasovasostomy ..... 847  
*Iain A. D. Todd, M.D., F.A.C.S., et al*

## SPECIAL ARTICLE

- Starch Blocker ..... 848  
*Donald S. Robertson, M.D.*

## EDITORIALS

- Motivation, Awards and Recognition .....853  
*Louis J. Kettel, M.D.*
- Skepticism ..... 854  
*William B. McGrath, M.D.*

## ARMA REPORTS

- .....855

## FUTURE MEETINGS

- .....856

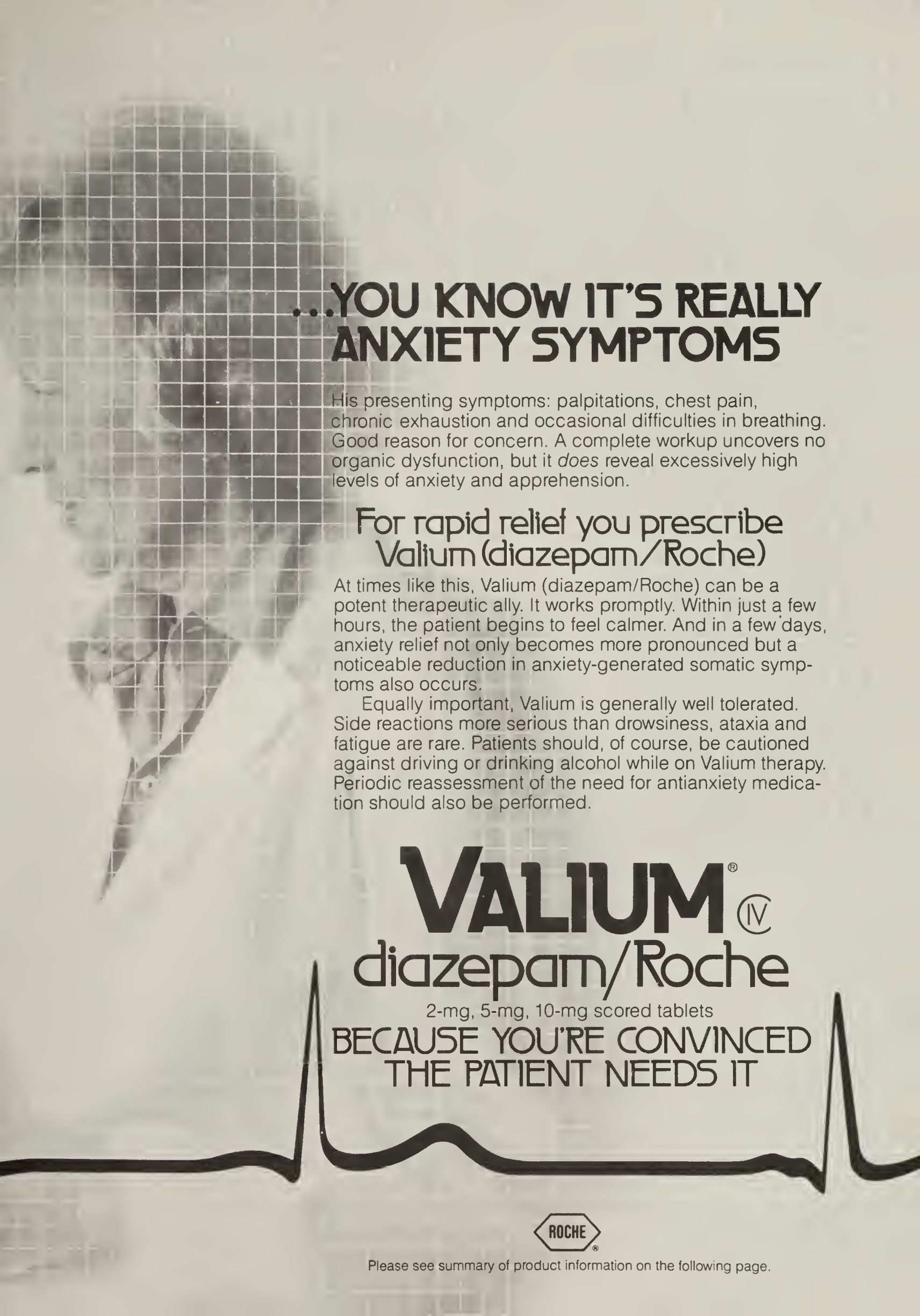
LIBRARY  
UC SAN FRANCISCO

THE LIBRARY, ACQUISITIONS DIV.  
U. OF CALIF., S.F.  
SAN FRANCISCO, CA 94143



**THE PATIENT THINKS  
HE HAS HEART TROUBLE...**





## ...YOU KNOW IT'S REALLY ANXIETY SYMPTOMS

His presenting symptoms: palpitations, chest pain, chronic exhaustion and occasional difficulties in breathing. Good reason for concern. A complete workup uncovers no organic dysfunction, but it *does* reveal excessively high levels of anxiety and apprehension.

### For rapid relief you prescribe Valium (diazepam/Roche)

At times like this, Valium (diazepam/Roche) can be a potent therapeutic ally. It works promptly. Within just a few hours, the patient begins to feel calmer. And in a few days, anxiety relief not only becomes more pronounced but a noticeable reduction in anxiety-generated somatic symptoms also occurs.

Equally important, Valium is generally well tolerated. Side reactions more serious than drowsiness, ataxia and fatigue are rare. Patients should, of course, be cautioned against driving or drinking alcohol while on Valium therapy. Periodic reassessment of the need for antianxiety medication should also be performed.

# VALIUM<sup>®</sup> <sup>IV</sup>

## diazepam/Roche

2-mg, 5-mg, 10-mg scored tablets

BECAUSE YOU'RE CONVINCED  
THE PATIENT NEEDS IT



Please see summary of product information on the following page.



## VALIUM®(diazepam/Roche)

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome; convulsive disorders (not for sole therapy).

The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication, abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d., adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

**How Supplied:** For oral administration, Valium scored tablets—2 mg, white; 5 mg, yellow; 10 mg, blue—bottles of 100\* and 500,\* Prescription Paks of 50, available in trays of 10,\* Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25,\* and in boxes containing 10 strips of 10.\*

\*Supplied by Roche Products Inc., Manati, Puerto Rico 00701

†Supplied by Roche Laboratories, Division of Hoffmann-La Roche Inc., Nutley, New Jersey 07110

## Saddle up for a SUPER TWO days of tennis!

"Super Two" is the perfect tennis clinic for your busy lifestyle. In addition to two relaxing days and nights of Mobil Four Star Resort luxury in the romantic Old West of the Wickenburg Inn, Super Two includes five hours of instruction, court time, all meals and horseback riding. The Wickenburg Inn Tennis Center features 11 acrylic courts and a guest-teaching pro ratio of 5 to 1 or less. It's just what your game needs — a Super Two days of tennis!

See your Travel Agent, or call 1-684-7811



**THE WICKENBURG INN**  
Tennis and Guest Ranch

P.O. Box P Dept AM  
Wickenburg, Arizona 85358  
(602) 684-7811

| Rates per person from |       |       |
|-----------------------|-------|-------|
|                       | Dbt   | Sp    |
| Thru Oct              | \$130 | \$146 |
| Nov & Jan             | 168   | 194   |
| Dec &                 |       |       |
| Feb-Apr               | 190   | 202   |

2 Day / 2 Night Tennis Clinic  
Rates include 5 hours of instruction, tennis, all meals, horseback riding.  
Call for 7-day clinic rates



*Arizona Medicine* (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to *Arizona Medicine* 810 W. Bethany Home Rd., Phoenix, AZ 85013.

*Arizona Medicine* does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.



ROCHE PRODUCTS INC.  
Manati, Puerto Rico 00701

# sponsored group insurance

As a member of the Arizona Medical Association, you can take advantage of life, health and accident insurance selected to meet your needs, with the savings available through group insurance.

The Arizona Medical Association has provided its members with sponsored insurance programs for over 25 years. The programs currently available are: disability, term life (for members and their spouses), defendant's reimbursement, accidental death and overhead expense.

Companies and policies are selected to provide coverage and service that meets a professional's needs and standards.

The Arizona Medical Association provides supervision of the administration of these programs as needed to insure that they continue to merit your support.

## ARIZONA MEDICAL ASSOCIATION



life, health & accident insurance

administered by

HEALTH AGENCIES OF THE WEST, INC.



local service by

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200, Phoenix, Arizona 277-6672  
or 630 Craycroft, Tucson, Arizona 85711 745-0793



New from Janssen Pharmaceutica:  
Introducing a promising new approach  
to coccidioidomycosis therapy

# NIZORAL<sup>TM</sup>

TABLETS

## (ketoconazole)

### New:

**the first and only orally effective,  
broad-spectrum antifungal agent.**

NIZORAL (ketoconazole) is clinically effective against the major yeast and fungal pathogens. For *C. immitis*, the average MIC is less than 1  $\mu\text{g/ml}$ . Absorption of ketoconazole is rapid; mean peak plasma levels of approximately 3.5  $\mu\text{g/ml}$  are reached within 1-2 hours following a single 200 mg tablet. Development of resistance to NIZORAL has not yet been reported.

### Effective:

**"...a promising new drug for  
treatment of coccidioidomycosis."<sup>1</sup>**

Clinical studies employing 200 to 400 mg NIZORAL per day have shown a combined response rate\* of 35% after 26 (median) weeks of therapy; (at this point, however, 69% of patients were still being treated). Most patients were severe and chronic cases, either failures on or intolerant to amphotericin B.<sup>2</sup> (Recommended minimum treatment is 180 days.)

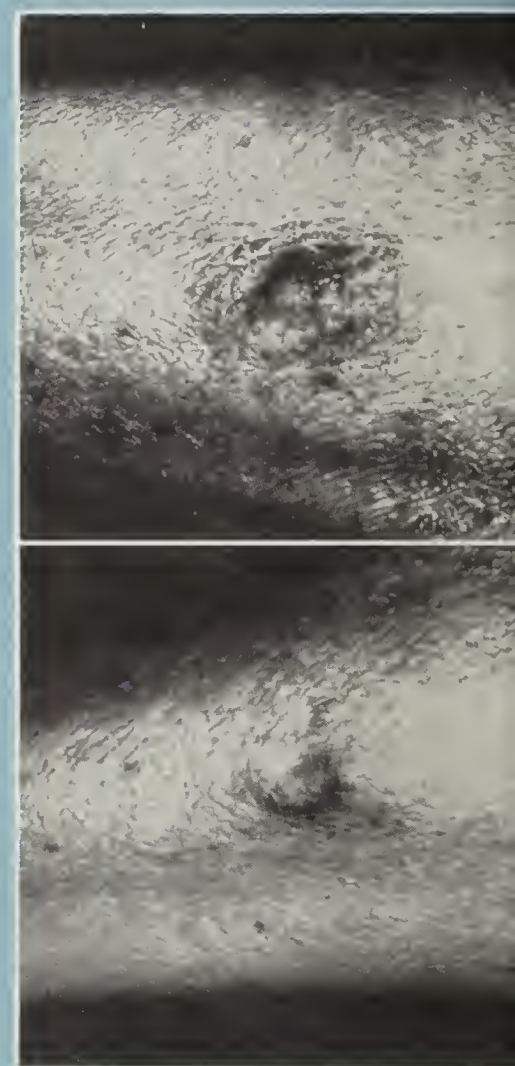
### Safe:

**"...can be safely administered  
for prolonged periods..."<sup>3</sup>**

Freedom from long-term toxicity permits use of extended therapeutic courses of NIZORAL, when indicated, and provides an extra margin of safety in presumptive antifungal therapy. Long-term administration has revealed no organ toxicity and no consistent changes in important hematological or biochemical values. Infrequent, transient increases in serum liver enzymes have been seen. Adverse reactions were generally minor and only rarely required withdrawal of therapy.

### Convenient:

**once-a-day oral regimen  
fosters compliance...facilitates use  
both in and out of the hospital.**

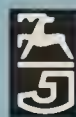


**Top:** Cutaneous lesion, disseminated coccidioidomycosis, before therapy.

**Bottom:** Lesion markedly resolved after oral NIZORAL therapy, photographed at 18 months.

\* Includes cases in remission or markedly improved (no evidence of active disease); both mycological and clinical criteria were considered in measuring overall response.

For further information on NIZORAL write: Professional Services,  
Janssen Pharmaceutica Inc., 501 George St., New Brunswick, N.J. 08903.  
See the facing page for Complete Prescribing Information.



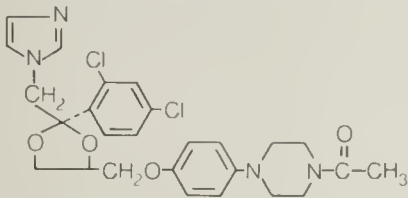
NEW orally effective

# NIZORAL<sup>TM</sup> TABLETS

(ketoconazole)

One tablet a day provides broad-spectrum antimycotic efficacy

**DESCRIPTION**  
NIZORAL<sup>TM</sup> (ketoconazole) is a synthetic broad-spectrum antifungal agent available in scored white tablets, each containing 200 mg ketoconazole. Ketoconazole is *cis*-1-acetyl-4-[4-[[2-(2,4-dichlorophenyl)-2-(1*H*-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl]methoxy]phenyl]piperazine and has the following structural formula



NIZORAL<sup>TM</sup> is a white to slightly beige, odorless powder, soluble in acids, with a molecular weight of 531.44.

**CLINICAL PHARMACOLOGY**  
Mean peak plasma levels of approximately 3.5 µg/ml are reached within 1 to 2 hours, following oral administration of a single 200 mg dose taken with a meal. Subsequent plasma elimination is biphasic with a half-life of 2 hours during the first 10 hours and 8 hours thereafter. Following absorption from the gastrointestinal tract, NIZORAL<sup>TM</sup> is converted into several inactive metabolites. The major identified metabolic pathways are oxidation and degradation of the imidazole and piperazine rings, oxidative O-dealkylation and aromatic hydroxylation. About 13% of the dose is excreted in the urine, of which 2 to 4% is unchanged drug. The major route of excretion is through the bile into the intestinal tract. *In vitro*, the plasma protein binding is about 99%, mainly to the albumin fraction. Only a negligible proportion of NIZORAL<sup>TM</sup> reaches the cerebral spinal fluid. NIZORAL<sup>TM</sup> is a weak dibasic agent and thus requires acidity for dissolution and absorption.

NIZORAL<sup>TM</sup> is active against clinical infections with *Candida* spp., *Coccidioides immitis*, *Histoplasma capsulatum*, *Paracoccidioides brasiliensis*, and *Phialophora* spp. Development of resistance to NIZORAL<sup>TM</sup> has not yet been reported.

The following preclinical data are available, however, their clinical significance is unknown. NIZORAL<sup>TM</sup> is active *in vitro* against dermatophytes, dimorphic fungi, eumycetes, yeasts, actinomycetes, phycomyces and various other fungi. In animal models, activity has been demonstrated against *Candida* spp., dermatophytes (*Trichophyton* spp., *Microsporum* spp., *Epidermophyton floccosum*), *Blastomyces dermatitidis*, *Histoplasma capsulatum*, *Malassezia furfur*, *Coccidioides immitis*, and *Cryptococcus neoformans*.

**Mode of Action:** *In vitro* studies suggest that NIZORAL<sup>TM</sup> impairs the synthesis of ergosterol, which is a vital component of fungal cell membranes. Tests in animals suggest this mechanism is not important in mammalian cells.

**INDICATIONS AND USAGE**  
NIZORAL<sup>TM</sup> is indicated for the treatment of the following fungal infections: candidiasis, chronic mucocutaneous candidiasis, oral thrush, candiduria, coccidioidomycosis, histoplasmosis, chromomycosis, and paracoccidioidomycosis. NIZORAL<sup>TM</sup> should not be used for fungal meningitis because it penetrates poorly into the cerebral-spinal fluid.

For the initial diagnosis, the infective organism should be identified, however, therapy may be initiated prior to obtaining laboratory results.

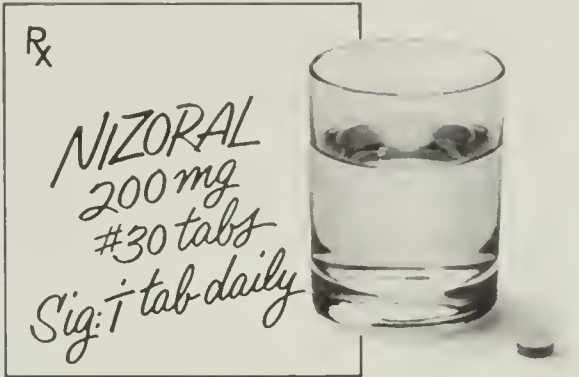
**CONTRAINDICATIONS**  
NIZORAL<sup>TM</sup> is contraindicated in patients who have shown hypersensitivity to the drug.

**WARNINGS**  
In female rats treated three to six months with ketoconazole at dose levels of 80 mg/kg and higher, increased fragility of long bones, in some cases leading to fracture, was seen. The maximum "no-effect" dose level in these studies was 20 mg/kg (2.5 times the maximum recommended human dose). The mechanism responsible for this phenomenon is obscure. Limited studies in dogs failed to demonstrate such an effect on the metacarpals and ribs.

**PRECAUTIONS**  
**General:** In four subjects with drug-induced achlorhydria, a marked reduction in NIZORAL<sup>TM</sup> absorption was observed. NIZORAL<sup>TM</sup> requires acidity for dissolution. If concomitant antacids, anticholinergics, and H<sub>2</sub>-blockers are needed, they should be given at least two hours after NIZORAL<sup>TM</sup> administration. In cases of achlorhydria, the patients should be instructed to dissolve each tablet in 4 ml aqueous solution of 0.2 N HCl. For ingesting the resulting mixture, they should use a glass or plastic straw so as to avoid contact with the teeth. This administration should be followed with a cup of tap water.

**Drug Interactions:** There is no evidence for clinically significant interaction with oral anticoagulant or oral hypoglycemic agents.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:** The dominant lethal mutation test in male and female mice revealed that single oral doses of NIZORAL<sup>TM</sup> as high as 80 mg/kg produced no mutation in any stage of germ cell development. The Ames *Salmonella* microsomal activator assay was also negative.



**Pregnancy:** Teratogenic effects: *Pregnancy Category C.* NIZORAL<sup>TM</sup> has been shown to be teratogenic (syndactylia and oligodactylia) in the rat when given in the diet at 80 mg/kg/day, (10 times the maximum recommended human dose). However, these effects may be related to maternal toxicity, evidence of which also was seen at this and higher dose levels.

Nonteratogenic effects: NIZORAL<sup>TM</sup> has also been found to be embryotoxic in the rat when given in the diet at doses higher than 80 mg/kg during the first trimester of gestation.

In addition, dystocia (difficult labor) was noted in rats administered NIZORAL<sup>TM</sup> during the third trimester of gestation. This occurred when NIZORAL<sup>TM</sup> was administered at doses higher than 10 mg/kg (higher than 125 times the maximum human dose).

It is likely that both the malformations and the embryotoxicity resulting from the administration of NIZORAL<sup>TM</sup> during gestation are a reflection of the particular sensitivity of the female rat to this drug. For example, the oral LD<sub>50</sub> of NIZORAL<sup>TM</sup> given by gavage to the female rat is 166 mg/kg, whereas in the male rat the oral LD<sub>50</sub> is 287 mg/kg.

**Nursing Mothers:** Since NIZORAL<sup>TM</sup> is probably excreted in the milk, mothers who are under NIZORAL<sup>TM</sup> treatment should not breast-feed the child.

**Pediatric Use:** Safety in children under two years of age has been documented in a limited number of cases.

**ADVERSE REACTIONS**  
NIZORAL<sup>TM</sup> is usually well tolerated. Most adverse reactions reported have been mild and transient and have only rarely required withdrawal of therapy. The most frequent adverse reactions were nausea and/or vomiting, which occurred in approximately 3% of patients. Abdominal pain was reported in approximately 12% of patients, pruritus in approximately 15% of patients. The following have been reported in less than 1% of patients: headache, dizziness, somnolence, fever and chills, photophobia, and diarrhea. Infrequent, transient increases in serum liver enzymes have been seen.

**OVERDOSAGE**  
In the event of accidental overdosage, supportive measures, including gastric lavage with sodium bicarbonate, should be employed.

**DOSAGE AND ADMINISTRATION**  
**Adults:** The recommended starting dose of NIZORAL<sup>TM</sup> is a single daily administration of 200 mg (one tablet). In very serious infections or if clinical responsiveness is insufficient within the expected time, the dose of NIZORAL<sup>TM</sup> may be increased to 400 mg (two tablets) once daily.

**Children:**  
Children weighing 20 kg or less: 50 mg (¼ tablet) once daily  
Children weighing 20-40 kg: 100 mg (½ tablet) once daily  
Children weighing over 40 kg: 200 mg (1 tablet) once daily

Generally, treatment should be continued until all clinical and laboratory tests indicate that active fungal infection has subsided. Inadequate periods of treatment may yield poor response and lead to early recurrence of clinical symptoms. Minimum treatment for candidiasis is one or two weeks. Patients with chronic mucocutaneous candidiasis usually require maintenance therapy. Minimum treatment for the other indicated systemic mycoses is six months.

**HOW SUPPLIED**  
NIZORAL<sup>TM</sup> is available as white, scored tablets containing 200 mg of ketoconazole debossed "JANSSEN." They are supplied in bottles of 60 tablets.

U.S. Patent Pending  
NDC 50458-220-06 (60 tablets)

May 1981

Manufactured by:  
Janssen Pharmaceutica n.v.  
B-2340 Beerse, Belgium

For:  
Janssen Pharmaceutica Inc.  
New Brunswick, New Jersey 08903 USA

**References:**  
**1.** Brass C, Galgiani JN, Campbell SC, et al: Therapy of disseminated or pulmonary coccidioidomycosis with ketoconazole. *Reviews of Infectious Diseases* 2 (4): 656-660, 1980. **2.** Data on file, Janssen Pharmaceutica. **3.** Graybill JR, Lundberg D, Donovan W, et al: Treatment of coccidioidomycosis with ketoconazole. Clinical and laboratory studies of 18 patients. *Reviews of Infectious Diseases* 2 (4): 661-673, 1980.

Committed to research...  
because so much remains to be done.

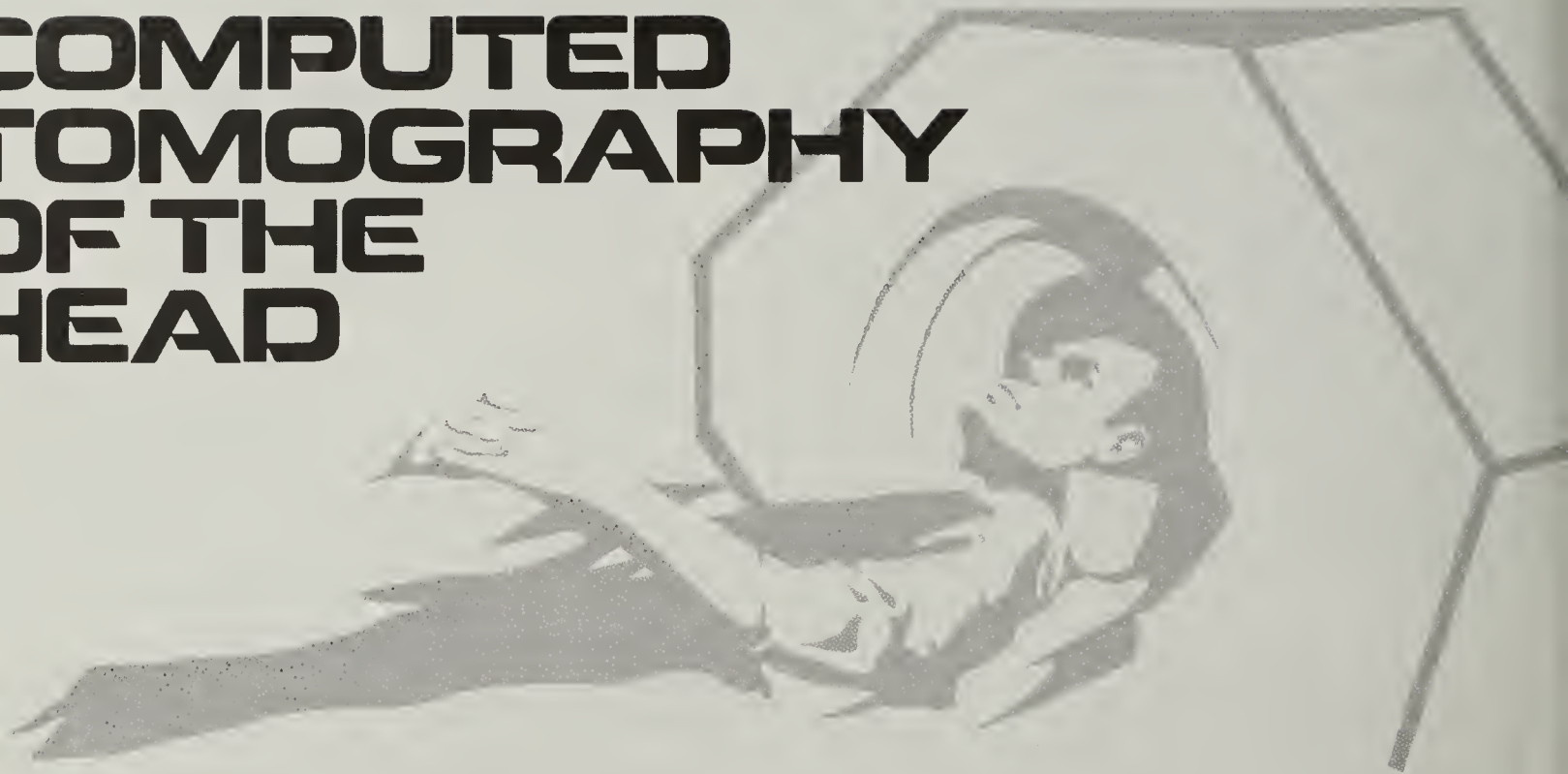


**JANSSEN**  
PHARMACEUTICA

Janssen Pharmaceutica Inc., 501 George St., New Brunswick, N.J. 08903



# COMPUTED TOMOGRAPHY OF THE HEAD



## **CNS** Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207•  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

## MEDICAL BOOKSTORE



The only bookstore in Arizona  
devoted exclusively to books for  
the medical profession.

## MEDICAL BOOKSTORE

College of Medicine  
Arizona Health Sciences Center  
Tucson, Arizona 85724  
Phone: 626-6669

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully  
bound books. Choose from 30 different  
colors of durable Library Buckram

**\$14.00 per volume, (name imprint.75)**

**\$15.50 Imitation Leather, (rules .25 each)**

Inquire about quantity discounts.

**Free** local pickup and delivery on 10 volumes  
or more

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338

# There's more to ZYLOPRIM<sup>®</sup> than (allopurinol).



- From Burroughs Wellcome Co. – the discoverer and developer of allopurinol
- Patient starter/conversion kits available for easy titration of initial dosage
- Patient compliance pamphlets available
- Continuing medical education materials available for physicians



**Prescribe for your patients as you would for yourself.**

*Write "D.A.W.," "No Sub," or "Medically Necessary,"  
as your state requires, to make sure  
your patient receives the original allopurinol.*



Burroughs Wellcome Co.  
Research Triangle Park  
North Carolina 27709





## CHANCES ARE, THE CHECK WILL COME BACK FASTER IF YOU FILE A CLAIM FOR THEM.

Filing an insurance claim is really very simple. But most patients seldom file one. So their chances of making an error, or putting off mailing it, are greater. Those errors and delays make everybody unhappy. But together we can avoid that.

Blue Cross and Blue Shield will soon be unveiling some "high-tech" claims-processing equipment, right here in Arizona. It will cut the turnaround time on an accurate claim for covered services, in *half*!

But we can't set the wheels in motion until an accurate claim is received, so we're asking your help.

Simply ask for the ID card, fill out the AMA uniform claim form, and see that it's mailed.

What's in it for you? Fast, accurate payment for the covered claims you submit in behalf of Blue Cross and Blue Shield patients. In a time of high interest, that's like money in the bank.

But there's a better reason: That simple step will relieve a lot of your patient's anxiety over "past due" notices from you.



**Blue Cross<sup>®</sup>  
Blue Shield<sup>®</sup>**  
of Arizona

**"MAKING IT EASIER"**



COUGH

COUGH

COUGH



# For Sneezing and Nasal Congestion



## RU-TUSS<sup>®</sup> TABLETS

Each prolonged action tablet contains:

|                                             |         |
|---------------------------------------------|---------|
| Phenylephrine Hydrochloride . . . . .       | 25 mg   |
| Phenylpropanolamine Hydrochloride . . . . . | 50 mg   |
| Chlorpheniramine Maleate . . . . .          | 8 mg    |
| Hyoscyamine Sulfate . . . . .               | 0.19 mg |
| Atropine Sulfate . . . . .                  | 0.04 mg |
| Scopolamine Hydrobromide . . . . .          | 0.01 mg |

Ru-Tuss Tablets act continuously for 10 to 12 hours.

- Vasoconstrictor, antihistaminic actions
- Rapid and prolonged relief of nasal and sinus congestion
- Convenient b.i.d. dosage



Boots Pharmaceuticals, Inc.  
Pioneers in Medicine

# For Coughing With Nasal and Bronchial Congestion



## RU-TUSS<sup>®</sup> EXPECTORANT

Each fluid ounce of Ru-Tuss Expectorant contains:

|                                             |         |
|---------------------------------------------|---------|
| Codeine Phosphate . . . . .                 | 65.8 mg |
| (WARNING: MAY BE HABIT FORMING)             |         |
| Phenylephrine Hydrochloride . . . . .       | 30 mg   |
| Phenylpropanolamine Hydrochloride . . . . . | 20 mg   |
| Pheniramine Maleate . . . . .               | 20 mg   |
| Pyrilamine Maleate . . . . .                | 20 mg   |
| Ammonium Chloride . . . . .                 | 200 mg  |
| Alcohol . . . . .                           | 5%      |

- Vasoconstrictor, antihistaminic, expectorant actions with codeine
- Rapid relief of upper respiratory congestion and cough
- Good tasting

veeport, Louisiana 71106.

the Family



# SNEEZE

## RU-TUSS<sup>®</sup> TABLETS

### DESCRIPTION

Each prolonged action tablet contains:

|                                   |         |
|-----------------------------------|---------|
| Phenylephrine Hydrochloride       | 25 mg   |
| Phenylpropanolamine Hydrochloride | 50 mg   |
| Chlorpheniramine Maleate          | 8 mg    |
| Hyoscyamine Sulfate               | 0.19 mg |
| Atropine Sulfate                  | 0.04 mg |
| Scopolamine Hydrobromide          | 0.01 mg |

Ru-Tuss Tablets act continuously for 10 to 12 hours

Ru-Tuss Tablets are an oral antihistaminic, nasal decongestant and anti-secretory preparation.

**INDICATIONS AND USAGE** Ru-Tuss Tablets provide relief of the symptoms resulting from irritation of sinus, nasal and upper respiratory tract tissues. Phenylephrine and phenylpropanolamine combine to exert a vasoconstrictive and decongestive action while chlorpheniramine maleate decreases the symptoms of watering eyes, post nasal drip and sneezing which may be associated with an allergic-like response. The belladonna alkaloids, hyoscyamine, atropine and scopolamine further augment the anti-secretory activity of Ru-Tuss Tablets.

**CONTRAINDICATIONS** Hypersensitivity to antihistamines or sympathomimetics. Ru-Tuss Tablets are contraindicated in children under 12 years of age and in patients with glaucoma, bronchial asthma and women who are pregnant. Concomitant use of MAO inhibitors is contraindicated.

**WARNINGS** Ru-Tuss Tablets may cause drowsiness. Patients should be warned of the possible additive effects caused by taking antihistamines with alcohol, hypnotics, sedatives or tranquilizers.

**PRECAUTIONS** Ru-Tuss Tablets contain belladonna alkaloids, and must be administered with care to those patients with glaucoma, or urinary bladder neck obstruction. Caution should be exercised when Ru-Tuss Tablets are given to patients with hypertension, cardiac or peripheral vascular disease or hyperthyroidism. Patients should avoid driving a motor vehicle or operating dangerous machinery (See Warnings).

**OVERDOSAGE** Since the action of sustained release products may continue for as long as 12 hours, treatment of overdoses directed at reversing the effects of the drug and supporting the patient should be maintained for at least that length of time. Saline cathartics are useful for hastening evacuation of unreleased medication. In children and infants, antihistamine overdosage may produce convulsions and death.

**ADVERSE REACTIONS** Hypersensitivity reactions such as rash, urticaria, leukopenia, agranulocytosis, and thrombocytopenia may occur. Other adverse reactions to Ru-Tuss Tablets may be drowsiness, lassitude, giddiness, dryness of the mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, tachycardia, hypotension/hypertension, faintness, dizziness, tinnitus, headache, incoordination, visual disturbances, mydriasis, xerostomia, blurred vision, anorexia, nausea, vomiting, diarrhea, constipation, epigastric distress, hyperirritability, nervousness, dizziness and insomnia. Large overdoses may cause tachypnea, delirium, fever, stupor, coma and respiratory failure.

**DOSAGE AND ADMINISTRATION** Adults and children over 12 years of age, one tablet morning and evening. Not recommended for children under 12 years of age. Tablets are to be swallowed whole.

### HOW SUPPLIED:

Bottles of 100 Tablets

Bottles of 500 Tablets

Federal law prohibits dispensing without prescription

NDC 0524-0058-01

NDC 0524-0058-05

# COUGH

## RU-TUSS<sup>®</sup> EXPECTORANT

### DESCRIPTION

Each fluid ounce of Ru-Tuss Expectorant contains:

|                                        |         |
|----------------------------------------|---------|
| Codeine Phosphate                      | 65.8 mg |
| <b>(WARNING: MAY BE HABIT FORMING)</b> |         |
| Phenylephrine Hydrochloride            | 30 mg   |
| Phenylpropanolamine Hydrochloride      | 20 mg   |
| Pheniramine Maleate                    | 20 mg   |
| Pyrilamine Maleate                     | 20 mg   |
| Ammonium Chloride                      | 200 mg  |
| Alcohol                                | 5       |

Ru-Tuss Expectorant is an oral antitussive, antihistaminic, nasal decongestant and expectorant preparation.

**INDICATIONS AND USAGE** Ru-Tuss Expectorant is indicated for symptomatic relief of upper respiratory congestion associated with pharyngitis, tracheitis, bronchitis, or allergic rhinitis. Also, for the temporary relief of symptoms associated with hay fever allergies, nasal congestion and cough due to the common cold.

**CONTRAINDICATIONS** Hypersensitivity to antihistamines. Concomitant use of an antihypertensive or antidepressant drug containing a monoamine oxidase inhibitor is contraindicated.

Ru-Tuss Expectorant is contraindicated in patients with glaucoma, bronchial asthma and in women who are pregnant.

**WARNINGS** Ru-Tuss Expectorant contains codeine phosphate, therefore, the patient should be warned of the potential that this drug may be habit forming. Ru-Tuss Expectorant may cause drowsiness. Patients should be warned of the possible additive effects caused by taking antihistamines with alcohol, hypnotics, sedatives and tranquilizers.

**PRECAUTIONS** Patients taking Ru-Tuss Expectorant should avoid driving a motor vehicle or operating dangerous machinery (See Warnings). Caution should be taken with patients having hypertension, diabetes, hyperthyroidism and cardiovascular disease. Caution should also be used in patients with pulmonary, hepatic or renal insufficiency.

**ADVERSE REACTIONS** Ru-Tuss Expectorant may cause drowsiness, lassitude, giddiness, dryness of mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, tachycardia, hypotension/hypertension, faintness, dizziness, tinnitus, headache, incoordination, visual disturbances, mydriasis, xerostomia, blurred vision, anorexia, nausea, vomiting, diarrhea, constipation, epigastric distress, hyperirritability, nervousness and insomnia. Overdoses may cause restlessness, excitation, delirium, tremors, euphoria, metabolic acidosis, stupor, tachycardia and even convulsions.

**DOSAGE AND ADMINISTRATION** Adults: 1 or 2 teaspoonfuls, orally, every 4 hours, not to exceed 10 teaspoonfuls in any 24-hour period.

Children 6 to 12 years of age: ½ the adult dose, not to exceed 6 teaspoonfuls in a 24-hour period. Children 2 to 6 years of age: ¼ teaspoonful every 4 hours, not to exceed 3 teaspoonfuls in any 24-hour period. Children under 2 years of age: Use as directed by a physician.

### HOW SUPPLIED

Pint bottles (16 fl. oz.)

Federal law prohibits dispensing without prescription

NDC 0524-1010

### DISTRIBUTED BY:

Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

### MANUFACTURED BY:

Vitarine Company, Inc.  
Springfield Gardens, New York 11413



Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

Pioneers in Medicine For the Family

# THE MEASURE OF FINANCIAL PLANNING IS HOW WELL IT STANDS THE TEST OF TIME.

Only a trust company understands the delicate balance between investing wisely and profitably to meet today's financial needs... while making certain your family is protected financially with an ongoing income for future years.

If you're a person of substantial means with a net worth of \$500,000 or more, you need a very special kind of trust company to fulfill this important responsibility.

Look for the source that can offer you expert advice in today's complex world of taxes, inflation and everchanging financial trends. Choose a trust company large enough to offer a wide range of sophisticated and innovative investment management alternatives.



Insist that your trust company be experienced in every aspect of asset management and estate administration. At Northern Trust, you'll have the assurance of services personalized to meet your financial objectives.

Financial peace of mind comes naturally at Arizona's oldest personal trust company, where asset and trust management is their only business.

For a confidential appointment, or to receive a complimentary guide to our services, call

or write Anton L. Janik, Vice President, 4350 East Camelback Road, Phoenix, Arizona 85018. (602) 959-8550.

Corporate Affiliate of The Northern Trust Company, Chicago.



## The Northern Trust Company of Arizona



# Local families find young adult treatment program helps solve serious problems.

The period from approximately 18 to 25 years of age can be the most difficult of a lifetime.

It is a time of change, decision-making and responsibility-taking. Young adults are pulled in every direction, and many are not prepared for the sudden transition from childhood to adulthood.

Confusion, anxiety, a sense of failure and depression are overwhelming experiences for the young adult, and the use of drugs and alcohol only make things worse. As a result, the young adult is often immobilized by uncertainty.

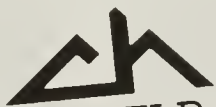
At Scottsdale Camelback Hospital, our Young Adult Treatment Program works closely with such young people to stabilize their emotions and alleviate symptoms. The program lays a foundation for growth and development. Values are clarified. Career goals are examined.

The program has been instrumental in solving serious problems for a number of families faced with the need to assist a young adult during this trying period. If such a problem is occurring in your family, you are urged to consult your physician about our program, or to call Scottsdale Camelback Hospital for further details.

Camelback Hospitals are among the leading psychiatric centers of the Southwest. An open medical staff of more than 60 psychiatrists, as well as psychologists, psychiatric nurses, social workers and activity therapists provide 24-hour care. Camelback Hospitals and Camelback Mental Health Center are fully accredited and licensed by the State of Arizona.

There are specialized programs for adolescents (13-17 years of age) at our Phoenix Camelback Hospital.

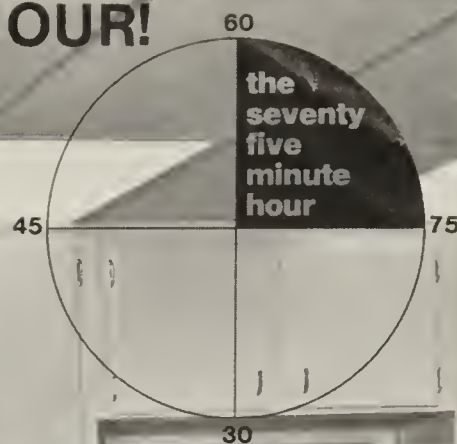
For further information, consult your physician or call us today.



**SCOTTSDALE CAMELBACK HOSPITAL**  
7575 E. Earll Drive Scottsdale, AZ 85251 Phone: 941-1108

*Doctor —  
This newspaper ad  
has been scheduled  
in leading Valley  
newspapers.  
Daniel W. Capps,  
President Camelback  
Hospitals*

# DEVELOP A SEVENTY-FIVE MINUTE HOUR!



## IN THE MEDICAL PROFESSION, TIME IS ONE OF YOUR MOST VALUABLE ASSETS!

LIGHTCOM medical communications and management systems will maximize the efficiency and improve the daily operation of your practice or health care facility. The light and digital systems are custom designed to meet your special needs and requirements. You are able to see more patients daily in a quieter and more controlled environment. You can communicate with and direct your staff instantly, discreetly with a single touch without knowing their location. All of this equals increased productivity through the most efficient use of personnel and examination rooms... thereby producing a more profitable practice or health care facility.

## JOIN THE QUIET REVOLUTION!

LIGHTCOM manufacturers, markets and installs America's leading medical communication and management systems nationwide. Our systems are micro-processor based with patient examination sequence **MEMORY** capabilities.

**LIGHTCOM**  
INC

Corporate Offices  
5990 Unity Drive  
Atlanta (Norcross), Georgia  
30071-9990

**LIGHTCOM**

Phone:  
(404) 447-5926

5990 Unity Drive  
Atlanta (Norcross), Georgia 30071-9990

For more information, mail coupon.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_

Specialty \_\_\_\_\_





# Clinical Utility of Serum Digoxin Levels

Charles Katzenberg, M.D.  
Gordon A. Ewy, M.D.

Editor:  
Kenneth B. Desser, M.D

### Introduction

Digitalis toxicity is a common clinical problem, especially in the elderly. In some reported series, it occurs with an alarming frequency.<sup>1,2</sup> Because of digitalis' narrow therapeutic-toxic ratio, monitoring therapy is important. The traditional method of monitoring digitalis therapy has been to follow the patient, looking for symptoms and/or electrocardiographic (ECG) evidence of toxicity.<sup>3</sup> In this article, we will discuss an additional clinical yardstick; measurement of serum digoxin levels by radioimmunosassay.

Application of the serum digoxin assay may be divided into two broad categories. The first entails the assurance of "adequate" serum digoxin levels, and the second is to add support to a clinical diagnosis of digoxin toxicity. In order to evaluate the efficacy of serum digoxin levels, the strength and weakness of the assay technique must be considered.

### Measurement Techniques

There are multiple "kits" available to perform the digoxin and/or digitoxin assay. All use the radioimmunoassay technique using <sup>125</sup>I, <sup>3</sup>H, or <sup>50</sup>Rb as radioactive markers. When different kits were compared with a standard 2.0 mg/L sample, results varied by as much as 30%.<sup>4,5</sup> The more recent (1980) American College of Pathologist Basic Ligand Survey and the American Association of Clinical Chemist Therapeutic Drug Monitoring Survey indicate more precise results.<sup>6</sup> Two standard deviations for a 1.0 ng/dl sample was 20

percent and for a 3.5 ng/dl sample was 10 percent. Thus, the methods now available appear to indicate increased test proficiency among laboratories.

Zeeger has demonstrated that spironolactone and prednisone cause substantial interference with the tritiated [<sup>3</sup>H] digoxin radioimmunoassay (RIA).<sup>7</sup> Subsequent studies using <sup>125</sup>I-labelled digoxin were unable to show this interference.<sup>8</sup> Therefore, the type of radioactive digoxin label and/or the specificity of the digoxin antibody may determine the extent of extraneous drug interactions as well as the accuracy of given assay.

Another potential source of error for the <sup>125</sup>I digoxin RIA is recent isotope studies, as residual radioactivity will give falsely low serum digitalis levels. The increasing use of radionuclide in diagnostic medicine makes this an important consideration.

A final, and perhaps the most important, caveat is that an oral dose of digoxin takes five to six hours, and an intravenous dose three to four hours, to complete its distribution phase. Serum samples drawn prior to the above time limit may give falsely elevated serum digitalis levels.

### Relation Between Dose and Serum Levels

Many attempts have been made to predict serum digitalis levels based on dosage and patient characteristics, i.e., age, sex, height, weight, and creatinine clearance. This data shows that it is difficult to predict, except in general terms, the serum digitalis levels in a newly digitalized patient. However, once a chronic stable serum digitalis level has been established, it is possible to predict changes in serum digitalis levels based on dosage changes.

In six healthy males given a loading dose followed by seven days of 0.25 mgs of daily oral digoxin, serum levels ranged from 0.3 to 0.6 ng/ml.<sup>9</sup> When the dose was increased to 0.5 mgs daily for seven days, the serum digoxin level ranged from 0.65 - 1.2 ng/ml. Although there was variability in the initial serum digoxin level among comparable patients on identical doses, doubling the maintenance dose increased the plasma level twofold. Okada has shown that this relationship also holds true in patients with renal insufficiency.<sup>10</sup>

Holt has shown a wide range of serum digoxin levels in a group of patients on chronic stable digoxin therapy.<sup>11</sup> They concluded that "knowledge of the daily dose is not a precise enough measure to predict the state of digitilization." Ochs also found poor correlation between daily dose and serum digitalis levels and noted that age, sex, body surface area, and serum creatinine do not explain all of the variability.<sup>12</sup>

Although Simonson found a statistically significant correlation between calculated and measured digoxin levels, their 95 percent confidence limits were large (1.75 ng/ml), and termed their results "clinically unacceptable."<sup>13</sup> Peck, using a computer that considered patient size and renal function was also unable to adequately predict serum digitalis levels.<sup>14</sup> In contrast, Koup measured both creatinine clearance and digoxin

renal clearance and found they could predict serum digitalis levels. This method, although successful, is too cumbersome to be clinically useful.<sup>15</sup>

Several factors contribute to the discrepancy between dose and serum levels. One is the bioavailability of a given digoxin preparation. A typical tablet containing 0.25 mg of digoxin, weighs 125 mg. Therefore, 0.25/125 or only one part in 500 by weight is digoxin.<sup>16</sup> Although each tablet is supposed to contain 92%-108% of its stated digoxin content, this was not always the case.<sup>17,18</sup> In addition to content, the tablet must dissolve effectively in order to promote absorption as a standard. The present requirements are that fifty to ninety percent of the digoxin content must be released within two hours of incubation in a dilute hydrochloric acid bath.<sup>19</sup> The FDA has improved surveillance in recent years and today there is a much greater chance than in the past, that generic digoxin meets the above mentioned standards.<sup>16,19</sup>

Malabsorption or rapid gastrointestinal transit will interfere with digoxin absorption in an unpredictable manner and therefore serum digoxin determinations may be helpful in this setting. Drugs such as kaolin-pectin, cholestyramine, and neomycin also interfere with absorption and thereby steady state serum digoxin levels.

Other important variables include the dose of digitalis, the patients lean body mass and renal function and drug-drug interaction, such as the digoxin-quinidine interaction.<sup>20-25</sup> However, once a steady state digoxin level is achieved, there is ample evidence that doubling the dose will double the plasma digoxin level.

To summarize, it is difficult to consistently and accurately predict the steady state serum digoxin levels from the daily dose. Therefore, serum digoxin determinations made after the patient has been taking digoxin for eight to ten days, may provide valuable information.

#### Serum Digoxin Levels and Digitoxicity

Once a steady state has been achieved, there is evidence for a relatively constant relationship between serum and myocardial digoxin concentrations.<sup>26</sup> In addition, there is evidence for a positive dose-response relationship between serum digoxin levels and systolic time intervals, as well as a positive relationship between myocardial digoxin content and inotropism.<sup>27</sup>

Despite the above relationships, both Goldman and Redfors were unable to correlate serum digoxin levels to the control of the ventricular response rate in atrial fibrillation.<sup>29,30</sup> This apparent paradox relates to the fact that conduction through the atrioventricular (AV) node is influenced not only by the status of the AV node and the direct effect of digitalis, but also by sympathetic as well as parasympathetic innervation. The sympathetic effect is enhanced by circulating and neuronally mediated catecholamines. The major non-inotropic effect of digitalis is mediated via the central nervous system to increase vagal tone.<sup>31</sup> The direct and

Table 1  
Factors Altering the Relationship Between  
A Specific Digoxin Concentration and  
Myocardial Sensitivity

|                             |          |
|-----------------------------|----------|
| Electrolyte Abnormalities   |          |
| Potassium                   | (34) (3) |
| Magnesium                   | (41)     |
| Calcium                     | (42)     |
| Thyroid State               | (43)     |
| Acute Myocardial Infarction |          |
| Cardiomyopathies            |          |
| Cor Pulmonale               | (44)     |
| Acute Hypoxia               | (45)     |
| Ischemic Heart Disease      | (46)     |
| Quinidine                   | (24)     |

sympatholytic actions of digitalis are less important. When sympathetic tone is not excessive, the heart rate response to atrial fibrillation will be slowed by digitalis. On the other hand, any increase in sympathetic tone, such as occurs with exercise, hypotension, congestive heart failure, etc., will result in an inordinately fast ventricular response rate in spite of digitalis. The lack of correlation between the serum digoxin level and the ventricular response rate in atrial fibrillation has been well documented. This non-relationship is particularly important to recognize in patients who are febrile, thyrotoxic or as noted above, have an increase in sympathetic tone. If, in these situations, the physician persists in increasing the dosage of digitalis in an effort to slow the ventricular response rate, digitalis intoxication will occur but may remain unsuspected. Dysrhythmias of digitalis excess are difficult to recognize in patients with atrial fibrillation.<sup>32-34</sup> Prior to the availability of reliable serum digoxin determinations, rhythms suggesting digitalis excess were often discovered only after the patient was converted to sinus rhythm.<sup>35</sup>

It is no longer justified to "push" digitalis to adequately control the ventricular response rate to atrial fibrillation. If a patient has received the appropriate loading dose, and the ventricular rate is not controlled, additional digoxin may be hazardous and other drugs such as beta blockers or verapamil should be used. This lack of correlation between the serum digoxin levels and the ventricular response rate to atrial fibrillation has lead many to conclude that serum digoxin levels were not reliable indicators of digitalis effect.

There are other factors that alter the myocardial effect of a given concentration of digitalis glycoside. The most important of these is the serum potassium level. The acid-base state and other electrolytes, including magnesium and calcium also alter the myocardial effect of a given serum digoxin concentration.<sup>36</sup>

In summary, there is a general relationship between serum digoxin levels and myocardial effect but this relationship is altered by a number of physiologic factors, listed in Table 1.



## Serum Levels and Toxicity

Braunwald's text summarizes thirty-four studies that show a general correlation between toxicity and serum digoxin level.<sup>37</sup> How helpful is this in the individual patient?

Smith and Haber found that thirteen percent of their patients with ECG evidence of toxicity had digoxin levels below 2.0 ng/ml.

Ochs found a "weak relation" between extracardiac symptoms of digitalis toxicity (nausea, vomiting, diarrhea, loss of appetite, fatigue, muscle weakness, confusion, visual changes) and serum digoxin levels.<sup>12</sup> Fogelman looked at 104 consecutive patients, and found that serum digoxin levels could not discriminate digitalis toxicity (by ECG) from those who were nontoxic.<sup>38</sup> Shapiro correlated serum digoxin levels with digitalis toxic dysrhythmias in hypo and normokalemic patients.<sup>39</sup> They had two groups that included 55 patients with electrocardiographic evidence of digitalis toxicity who were normokalemic with serum digoxin levels of  $3.7 \pm .17$  ng/ml. The second group consisted of 24 patients with electrocardiographic evidence of digitalis intoxication who were hypokalemic. In this group the mean serum digoxin level was  $1.13 \pm 0.04$  ng/ml. They concluded that there is great individual variation in the serum digoxin that will produce toxicity and that no arbitrary serum glycoside value will *independently* diagnose digitalis toxicity. Patients with serum digoxin levels less than 2 ng/ml can have electrocardiographic rhythms consistent with digitalis intoxication when the serum potassium is less than 3.5 mEq/L.<sup>30</sup>

The most recent study is that of Bernabei and associates. They noted, despite the fact that many studies have demonstrated a statistically significant difference between the mean serum digitalis levels of patients with and without toxicity, the clinical usefulness of serum digitalis had not been established since previous studies did not use appropriate controls, i.e., patients with similar signs but without intoxication.<sup>40</sup> Accordingly, they measured the serum digoxin level in 100 consecutive patients with suspected digitalis induced dysrhythmias. In the "toxic" group, in whom the dysrhythmia disappeared following digitalis withdrawal, the serum digoxin level was  $2.88 \pm 1.89$  ng/dl. In the non-toxic group, the mean serum digoxin level was  $1.00 \pm 0.61$  ( $p < 0.0001$ ). In this study, the serum digoxin level showed a predictive accuracy of 88%, a specificity of 89% and sensitivity of 62 percent. The figures from this electrocardiographic study cannot be applied to asymptomatic or symptomatic populations without electrocardiographic changes. The authors concluded that because of the high percent of *false negative* (i.e., patients with low serum digoxin levels but electrocardiographic evidence of toxicity) one cannot and should not consider a serum digoxin level by itself a diagnostic test for digitoxicity. However, it is a useful test since all other parameters are less sensitive and/or less rapid indicators of probable digitalis intoxication.

Table 2  
Indications for Obtaining  
Serum Digoxin Levels

1. Determine steady state digoxin level after initiating therapy.
2. Suspected digitalis excess.
3. Evaluate non-specific symptoms of patients on digitalis therapy.
4. Suspected non-compliance.
5. Poor therapeutic response to digitalis therapy.
6. Changing renal status.

## Indications for Serum Digoxin Levels

The indications for measuring serum digoxin or digitoxin levels are given in Table 2. These indications are based on the studies reviewed above and clinical experience. The blood sample must be obtained at least six hours after the last oral dose, and must be interpreted in light of the patients age, electrolytes, and clinical state.

## Conclusions

1. Multiple factors influence an individual's attainment of steady-state serum digoxin level. The principle determinants are the dose administered, lean body mass and renal function. A serum digoxin level is helpful in a newly digitalized patient after steady-state digoxin levels are reached.

2. Once a steady-serum digoxin level has been established, doubling or halving the dose will increase or decrease the level in a like manner.

3. Heart rate response, even in the patient with atrial fibrillation cannot be used to indicate the adequacy or inadequacy of digitalization.

4. Multiple factors may alter an individual's sensitivity to a given serum digoxin levels. The most important of these are increased age, and hypokalemia.

5. There is overlap between serum digoxin levels which are therapeutic and toxic. In general, the higher the serum digoxin level, the greater likelihood of toxicity.

6. Serum digoxin levels are helpful, but must be interpreted in clinical context.

## References

1. Evered DC, Chapman C: Plasma digoxin concentration and digoxin toxicity in hospital patients. *Br. Heart J* 33:540, 1971.
2. Beller GA, Smith TW, Ablemann WH, et al: Digitalis intoxication, a prospective clinical study with serum level correlations. *New Engl J Med* 284, 1971.
3. Ewy GA, Marcus FI, Fillmore SJ, et al: Digitalis intoxicative diagnosis, management and prevention. *Cardiovasc Clinics* 6(2):153, 1974.
4. Smith TW, Butler VP, Jr, Haber E: Determination of therapeutic and toxic serum digoxin concentrations by radioimmunoassay. *New Engl J Med* 281:1212, 1969.
5. Bergdahl B, Molin L, Lindesall L, et al: Four kits for plasma digoxin radioimmunoassay compared. *Clin Chem* 25:305, 1979.

6. Finley P: Personal communication.
7. Zeeger JJW, Maas AJH, Wellebrands AF, et al: The radioimmunoassay of plasma-digoxin. *Clin Chem Acta* 44:109, 1973.
8. Ravel R: Negligible interference by spironolactone and prednisone in digoxin radioimmunoassay. *Clin Chem* 21(12):1801, 1975.
9. Brown DD, Abraham GN: Plasma digoxin levels in normal human volunteers following chronic oral and intramuscular administration. *J Lab Clin Med* 82:201, 1971.
10. Okada RD, Hager WD, Graves PE, et al: Relationship between plasma concentration and dose of digoxin in patients with and without renal impairment. *Circ* 58:1196, 1978.
11. Holt DW, Williamson SD, Volans GN: Digoxin measurements in general practice. *Br J Clin Pharmacol* 4:321, 1977.
12. Ochs HR, Greenblatt DJ, Harmatz JS, et al: Serum digoxin concentrations and subjective manifestations of toxicity. *Pharmacology* 20:149, 1980.
13. Simonson W, Stennett DJ: Estimation of serum digoxin levels in geriatric patients. *Am J Hosp Pharm* 35:943, 1978.
14. Peck CC, Steiner LB, Martin CM, et al: Computer-assisted digoxin therapy. *New Engl J Med* 289:441, 1973.
15. Koup JR, Jusko WJ, Elwood CM, et al: Digoxin pharmacokinetics: role of renal failure in dosage regimen design. *Clin Pharmacol Ther* 18:9, 1975.
16. Butler VP, Lindertau J: Serum digitalis measurements in the assessment of digitalis resistance and sensitivity. *Am J Med* 58:460, 1975.
17. Vitti TG, Baner D, Byers TE: Bioavailability of digoxin. *New Engl J Med* 285, 1971.
18. U.S. Pharmacopeia, 13th ed., Easton, Pennsylvania, p. 199, 1970.
19. Harter JG: Comments from the FDA. *Am J Med* 58:477, 1975.
20. Heinz N, Rietbrock N: Relationship between dose and plasma level of digoxin and patient characteristics. *Europ J Clin Pharmacol* 15:109, 1979.
21. Ewy GA, Groves BM, Nimmo L, et al: Digoxin metabolism in obesity. *Circ* 44:810, 1971.
22. Ewy GA: Digoxin metabolism on the elderly. *Circ* 39:449, 1969.
23. Suzuki M, Dgawa K: Serum concentration of digoxin in the elderly and the effect of diuretics. *Jap Heart J* 21:341, 1980.
24. Hager WD, Fenster P, Mayersohn M, et al: Digoxin-Quinidine Interaction. *New Engl J Med* 300:1238, 1979.
25. Doherty JE: How and when to use the digitalis serum levels. *JAMA* 239:2594, 1978.
26. Doherty JE, Perkins WH, Flanigan WJ: The distribution and concentration of tritiated digoxin in human tissues. *Ann Intern Med* 66:116, 1967.
27. Hoeschen RJ, Cuddy TE: Dose-response relation between therapeutic levels of serum digoxin and systolic time intervals. *Am J Cardiology* 35:469, 1975.
28. Luchi RJ, Park CD, Waldhausen JA: Relationship between myocardial ouabain content and inotropic activity. *Am J Physiol* 220:906, 1972.
29. Goldman S, Probst P, Seher A, et al: Inefficacy of "therapeutic" serum levels of digoxin in controlling the ventricular rate in atrial fibrillation. *Am J Cardiology* 35:651, 1975.
30. Redfors A: Plasma digoxin concentration — its relation to digoxin dosage and clinical effects in patients with atrial fibrillation. *Br Heart J* 34:383, 1972.
31. Achter RA, Marshall RT, Davey T: Neuroregulations of atrioventricular conduction in the presence of digoxin. *Circulation* 62:III-138, 1980.
32. Kastor JA, Yurchak PM: Recognition of digitalis intoxication in the presence of atrial fibrillation. *Ann Int Med* 67:1045, 1967.
33. Friedberg H: Atrial fibrillation and digitalis toxicity. *Am Heart J* 77:429, 1969.
34. Kastor JA: Digitalis intoxication in patients with atrial fibrillation. *Circulation* 34:888, 1973.
35. Gilbert R, Cuddy RP: Digitalis intoxication following cardioversion to sinus rhythm. *Circulation* 32:58, 1965, 34.
36. Oparil S: Digitalis assay and its clinical application. *Med Clin NA* 60:193, 1976.
37. Braunwald: *Heart Disease* W. B. Saunders Co, Philadelphia, 1980, p 534.
38. Fogelman AM, LaMont JT, Finkelstein S, et al: Fallibility of plasma-digoxin in differentiating toxic from non-toxic patients. *Lancet* October 2, 1971, p 727.

39. Shapiro W: Correlative studies of serum digitalis levels and the arrhythmics of digitalis intoxication. *Am J Card* 41:852, 1978.
40. Bernabei R, Perna GP, Carosella L, et al: Digoxin serum concentration measurements in patients with suspected digitalis induced arrhythmias. *J Cardiovasc Pharm* 2:319, 1980.
41. Beller GA, Hood WB, Smith TW, et al: Correlation of serum magnesium levels and cardiac digitalis intoxication. *Am J Cardiol* 33:225, 1974.

## Editorial Comment

Kenneth B. Desser, M.D.

The above article places serum digoxin levels in proper perspective. There is no sense in ordering a "dig level" unless there is a high index of suspicion for digoxin toxicity or lack of therapeutic effect. Before the advent of loop diuretics "full" digitalization was an important goal yet in the current era there is no clinical law which dictates that the patient be exposed to the near toxic levels required for total effect. The extracardiac hemodynamic effects of digitalis are not widely appreciated. These glycosides can produce coronary, splanchnic, peripheral arterial and venous constriction especially when given rapidly via the intravenous route. These effects are mediated by both the local influence of digitalis on vascular smooth muscle and indirectly through the sympathetic nervous system.

It is currently thought that digitalis compounds inhibit the transmembrane movement of sodium and potassium by blocking the magnesium and ATP dependent activated transport enzyme complex known as Na<sup>+</sup>, K<sup>+</sup>-ATPase. It is surprising that we still do not fully understand the basic action of this venerable drug.

*Supported by the Biomedical Research Memorial Fund, Inc.*





## **A Case of Unilateral Neurogenic Pulmonary Edema**

Nathan W. Goff, Jr., M.D.  
William C. Weese, M.D.

**Editors:**

Richard J. Lemen, M.D.

Bernard Levine, M.D.

John J. Seidenfeld, M.D.

Acute pulmonary edema has been associated with central nervous system (CNS) disease in patients without antecedent history of cardiac or pulmonary disorders.<sup>1-3</sup> Generally, such edema is bilateral. We report a case of unilateral pulmonary edema associated with acute intracerebral hemorrhage.

### **Report of Case**

A thirty-two-year-old woman was brought to the hospital in respiratory distress following sudden loss of consciousness. She had experienced severe bifrontal headaches for the previous two days. Several minutes after she was observed sitting in a chair, her son found her on the floor, lying on her left side, with frothy, bloody secretions emanating from the nose and mouth.

Her history included resection of islet cell adenoma of the pancreas six years previously, Raynaud's phenomenon, frequent headaches, and depression. Although she had smoked 1-1/2 packages of cigarettes daily for 15 years, she had denied chronic cough, dyspnea, chest pain or congestion, and reported no history of hypertension or renal disease. Prior chest roentgenograms had been normal.

On examination, she was obtunded, but arousable, with her blood pressure 90/60 mm Hg, pulse 68 and regular, respirations 24 and shallow, and temperature

37°C. She was intubated in the emergency room; frothy red sputum was suctioned from both the mouth and the nasotracheal tube. Coarse rales were present over the entire left hemithorax; a few fine rales were audible on the right. The precordium was quiet, and heart sounds were normal without murmur or gallop. Her pupils were round and equal; the right eye deviated laterally. Her neck was stiff. There was a left peripheral facial nerve paralysis, weakness of the left arm and leg, and a left sided Babinski sign.

The chest roentgenogram (Figure) demonstrated alveolar infiltrate in the left lung with peribronchial edema and perivascular cuffing on the right. The cardiac silhouette was not enlarged, and there was no redistribution of blood to the upper lobes. With the patient breathing room air, arterial blood gas tensions were PaO<sub>2</sub> 43 torr, PaCO<sub>2</sub> 35 torr, and pH 7.29. A subclavian catheter was inserted; the central venous pressure was 3 cm water. Computed cranial tomography documented subarachnoid hemorrhage with right frontal lobe hematoma, thin right subdural hematoma, and shift of the midline 1 mm to the left. Arteriography confirmed a primitive right anterior cerebral artery with a distal lobulated aneurysm measuring 4 by 10 mm.

The patient was treated with mechanical ventilation, positive end expiratory pressure (PEEP), fluid restriction, and furosemide. Her mental status, left hemiparesis, and arterial blood gases improved within twelve hours. She was extubated the following day. On the tenth hospital day, hematoma was evacuated and the aneurysm clipped. The postoperative course was uneventful.

### **Discussion**

Neurogenic pulmonary edema (NPE) can be found in both clinical (cerebral trauma, hemorrhage, convulsive disorders, elevated cerebrospinal fluid pressure) and experimental (blunt trauma, intra-cisternal injection of fibrin, electrolytic lesions of the hypothalamus) settings.<sup>1-3</sup> Theodore and Robin<sup>2,3</sup> postulated an etiology for NPE to explain, a) the extremely rapid onset of edema — within seconds to minutes — after CNS injury, b) its frequent relationship to hypothalamic lesions, c) the potential suppression or prevention by CNS depressants and adrenergic blockers, d) the high protein content of the pulmonary edema fluid, e) the observed hemodynamic sequence, and f) the resemblance to epinephrine-related pulmonary edema. They hypothesized that the CNS injury causes a centrally mediated, massive sympathetic discharge, leading to generalized but transient vasoconstriction with shift of blood from high-resistance systemic circulation to low-resistance pulmonary circulation. This produces a marked increase in pulmonary vascular pressures and pulmonary blood volume. NPE then results from a) the hydrostatic effect of increased pulmonary capillary pressure and b) the altered pulmonary capillary permeability due to pulmonary hypertension and hypervolemia. As the transient systemic and pulmonary

From: Veterans Administration Medical Center, Prescott, Arizona 86313. Dr. Goff, Staff Physician, was a Resident in Internal Medicine at Maricopa County General Hospital, Phoenix, Arizona, 1977-1980. Dr. Weese, Co-Director, Medical and Surgical Intensive Care Units, St. Joseph's Hospital and Medical Center, Phoenix, Arizona 85013.



## Skeletal Fluorosis From Eating Soil

Jeffrey R. Fisher, M.D.  
Maurice L. Sievers, M.D.  
Ruth T. Takeshita, M.D.  
Hayes Caldwell, M.D.

### Editors:

George Burdick, M.D.  
Stephen Glouberman, M.D.  
Steven R. Kanner, M.D.  
Robert Sanowski, M.D.

### Abstract

A woman with chronic pyelonephritis developed progressive muscular weakness and bone pain. For twenty years she had habitually ingested fluoride-rich soil. Osteosclerosis was found on x-ray examination, and fluorosis was confirmed by bone biopsy. Renal failure augmented skeletal retention of excessive fluoride intake which, in turn, appears to have intensified symptomatic renal osteodystrophy. Skeletal fluorosis from this unexpected source has not been previously described.

Key Words: North American Indians; Fluorosis; Geophagia.

Geophagia, the custom of eating earth or clay, is widespread among certain desert-dwelling Indian tribes of the American Southwest, and among blacks of the southeastern United States. The practice is most frequently implicated as a symptom of iron deficiency.<sup>1</sup> In addition, a syndrome of hypogonadism and hepatosplenomegaly due to impaired iron and zinc absorption,<sup>2</sup> and life-threatening hyperkalemia in patients with chronic renal failure<sup>3</sup> have been observed in relation to the habitual ingestion of soil or clay. To our knowledge, this is the first report of skeletal fluorosis from geophagia.

From: The Phoenix Indian Medical Center, 4212 North Sixteenth Street, Phoenix, Arizona 85016. The opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the Indian Health Service.



Figure

Chest roentgenogram. Film on the left was taken shortly after admission. On follow-up film (right) twelve hours later, the pattern of unilateral pulmonary edema has cleared.

vascular hypertension subside, the patient is left with abnormal pulmonary capillary permeability in the face of normal cardiac function and normal systemic, pulmonary artery, and pulmonary capillary wedge pressures. Such a sequence of events was observed in a patient who developed recurrent intracranial hemorrhage while being hemodynamically monitored.<sup>1</sup>

Unilateral pulmonary edema is generally associated with processes affecting only one lung. Examples include bronchial obstruction, unilateral veno-occlusive disease or systemic-to-pulmonary artery shunts, unilateral aspiration pneumonia, pulmonary contusion, and rapid relief of pleural effusion or of pneumothorax.<sup>5</sup>

**Speculation**

Our patient's unilateral pulmonary edema reflected a combination of factors. The right sided cerebrovascular accident with resultant left hemiparesis caused her to fall on her left side. The left lung, in the dependent position, was subject to higher hydrostatic pressure than the right lung; with the transient increase in pulmonary hydrostatic pressure associated with the rupture of the aneurysm, only the left-sided pulmonary arteries and capillaries sustained sufficiently high pressures to cause capillary rupture, alteration in permeability, and shift of fluids to the interstitium. By the time she reached the hospital and blood pressure and central venous pressures were measured, the sympathetic discharge had subsided, her pressures returned to normal, and she was left with unilateral pulmonary edema.

### References

1. Luisada AA: Mechanism of neurogenic pulmonary edema. *Am J Cardiol* 20:66-68, 1967.
2. Theodore J, Robin ED: Pathogenesis of neurogenic pulmonary edema. *Lancet* 2:749-751, 1975.
3. Theodore J, Robin ED: Speculations on neurogenic pulmonary edema (NPE). *Am Rev Resp Dis* 113:405-411, 1976.
4. Wray NP, Nicotra MB: Pathogenesis of neurogenic pulmonary edema. *Am Rev Resp Dis* 118:783-786, 1978.
5. Calenoff L, Kruglick GD, Woodruff A: Unilateral pulmonary edema. *Radiology* 126:19-23, 1978.



## Case Report

A 40-year-old American Indian woman with chronic pyelonephritis and renal failure complained of progressive muscular weakness, fatigue, and increasingly severe pain in her ribs, low back, and left hip. X-ray study of these areas showed evidence of osteosclerosis, compatible with either renal osteodystrophy or skeletal fluorosis. The radiographic abnormalities had also been noted four years earlier. No other pathologic changes were apparent in the bones or ligaments, but radiopaque material was seen in the intestinal tract (Figure). On further questioning to elicit the source of this material, the patient acknowledged that she had been ingesting soil several times a day. Her craving for earth began 20 years earlier during her third pregnancy, but it had become more pronounced during the past three years despite empiric oral iron therapy. The dry weight of her estimated daily soil intake was 50 grams. In addition to her usual water consumption, she drank approximately six cups (200 cc each) of tea per day, prepared from an instant tea powder. No other dietary idiosyncracies were identified. Her life-long water supply contained only 0.7 mg/liter fluoride (average daily water intake of 2.0 liters constituted a fluoride ingestion of only 1.4 mg/day). Therefore, the tea and soil were analyzed for fluoride content in an attempt to further characterize the osseous radiodensity. This analysis revealed that the tea, as prepared by the patient, contained 2.5 mg/l, and the soil had 20 mg/100 gm. Thus, her daily fluoride intake from tea and soil was approximately 4.2 mg and 10.0 mg, respectively.

Except for pallor, the general physical, dental, and neurologic examinations were normal. Pertinent laboratory results included: hematocrit 21%; hemoglobin 6.6 g/dl; serum iron 90  $\mu$ g/dl; total serum iron binding capacity 290  $\mu$ g/dl; mean erythrocyte corpuscular volume 85 cu  $\mu$ ; mean corpuscular hemoglobin concentration 33%; blood urea nitrogen 41 mg/dl; creatinine clearance 5 ml/minute; serum calcium 8.1 mg/dl; phosphorus 2.9 mg/dl; magnesium 3.3 mg/dl; bicarbonate 14 meq/l, alkaline phosphatase 215 International units, immunoreactive parathyroid hormone (iPTH) 550 eq/ml (normal <80); arterial blood pH 7.31; urine pH 6.5; and arterial carbon dioxide pressure (pCO<sub>2</sub>) 29 mm Hg.

She was instructed to ingest no more tea or dirt. Calcitriol (1,25-dihydroxycholecalciferol) 0.5 mcg per day, was added to her therapeutic regimen of sodium bicarbonate, hydralazine, and furosemide. After three months of compliance with these dietary and therapeutic measures, the serum alkaline phosphatase, calcium, and phosphorus levels had returned to normal; the serum iPTH had decreased to 220 eq/ml; and the weakness and pain had greatly abated. Because her renal function remained inadequate, she underwent successful transplantation of a kidney from her father. During surgery, an iliac crest bone biopsy was performed. The bone specimen was ashed in an electric



Figure  
Radiopaque fluoride-rich soil in the intestinal tract (arrow), adjacent to sclerotic lumbar vertebrae.

muffle furnace at 600°C for three hours, and fluoride was determined on the ashed sample by standard procedures.<sup>1</sup> The bone ash contained 1.0% fluoride, a level approximating that for Cryolite workers after 20-40 years of toxic exposure.<sup>5</sup>

## Comment

Geophagia, the compulsive ingestion of earth, is most often associated with iron deficiency and anemia.<sup>1</sup> Our patient noted an increased craving for soil with progressive renal failure and anemia, but iron studies were normal. Gelfand and associates<sup>3</sup> found no relationship between clay ingestion and hematocrit levels in patients with end-stage renal disease and anemia, but they noted a strong association between geophagia and the origin of their black patients from rural the Southeast. We suspect that persons from certain ethnic groups ingest soil for cultural reasons, with adverse consequences developing primarily in those persons who have renal impairment. Because the kidney is the main pathway of fluoride excretion, patients with chronic renal failure are especially vulnerable to osseous accumulation of ingested fluoride and to potentially deleterious effects.

Skeletal fluorosis occurs with occupational exposure<sup>5</sup> and in geographic regions where the water supply contains excessive amounts of natural fluoride.<sup>4</sup> In addition, this disorder has been attributed to habitual drinking of fluorinated wine, and to the illicit use of methoxyflurane.<sup>6</sup> Nevertheless, exposure to high levels of inorganic fluoride itself has not been shown to produce renal damage.<sup>5</sup> In areas with a fluoridated water supply, the usual range of total fluoride intake from foods, beverages, and water is 3-5 mg/day.<sup>7</sup> Only when relatively large amounts of fluoride (8-20 mg/day) are ingested for prolonged periods are generalized adverse effects encountered. In the present case, impaired renal function resulted in decreased excretion and enhanced skeletal concentration of the excessive daily fluoride

intake from soil (10 mg) and tea (4.2 mg).

Osteosclerosis is reported to occur, without known exposure to fluoride, in 5% to 20% of patients with chronic renal failure, being more common in younger patients with secondary hyperparathyroidism.<sup>8</sup> Conversely, elevated bone fluoride content is frequently found in patients with uremia.<sup>7</sup> Increased bone radiodensity, thus, appears to be related to the positive effects of parathyroid hormone on new bone formation in some patients with renal failure, and to fluoride accumulation in others. In patients with endemic fluorosis the axial skeleton is primarily affected, as it was in our patient. Calcification of the sacral ligaments was not found in the present case. Such calcification is not invariable, but its occurrence in the presence of osteosclerosis is diagnostic of systemic fluorosis. By contrast, in renal osteodystrophy, osteosclerosis usually involves the peripheral as well as the axial skeleton, and ligamentous calcification is not found.<sup>7</sup>

The role of fluoride in ameliorating or aggravating renal osteodystrophy in chronic renal failure has been extensively reviewed, but the problem remains unsettled.<sup>7,9</sup> On one hand, the ion has been implicated in worsening renal osteodystrophy, especially with the use of fluoridated water for renal dialysis. Deionization of dialysis water not only has prevented the development of symptomatic osteomalacia in some patients but also, reportedly, has promoted healing of preexisting osteomalacia.<sup>7</sup> On the other hand, contradictory and equivocal results have also been demonstrated.<sup>9</sup> Fluoride promotes osteoblast activity, resulting in the formation of poorly mineralized osteoid that simulates osteomalacia. This halogen also appears to increase bone resistance to the actions of parathyroid hormone, thereby producing compensatory parathyroid activity.<sup>7</sup> In the present case, elimination of dietary fluoride and

treatment with calcitriol was associated with improvement in the symptoms and biochemical findings of osteodystrophy, perhaps as a result of a decrease in unmineralized osteoid.

The potential harm from excessive fluoride exposure in patients with impaired renal function is well recognized, but skeletal fluorosis following prolonged soil ingestion has not been previously described. Geophagia is widespread among certain southwestern American Indian tribes who also have a high prevalence of renal impairment.<sup>10</sup> Detailed questioning about dietary practices may identify potentially deleterious effects from the earth ingested by these Native Americans and by other ethnic groups who practice geophagia.

#### References

1. Crosby WH. Pica. *JAMA* 235:2765, 1976.
2. Arcasoy A, Cavdar AO, Babacan E: Decreased iron and zinc absorption in Turkish children with iron deficiency anemia and geophagia. *Acta Haematol* 60:76-84, 1978.
3. Gelfand MC, Zarate A, Knepshield JH: Geophagia: A cause of life-threatening hyperkalemia in patients with chronic renal failure. *JAMA* 234:738-740, 1975.
4. Singh A, Jolly SS, Bansal BC, et al: Endemic fluorosis. Epidemiological, clinical and biochemical study of chronic fluorine intoxication in Punjab (India). *Medicine* 42:229-246, 1963.
5. Hodge HC, Smith FA: Occupational fluoride exposure. *J Occup med* 19:12-39, 1977.
6. Klemmer PJ, Hadler NM: Subacute fluorosis: A consequence of abuse of an organofluoride anesthetic. *Ann Intern Med* 89:607-611, 1978.
7. Rao TKS, Friedman EA: Fluoride and bone disease in uremia. *Kidney International* 7:125-129, 1975.
8. Campos C, Arata RO, Mautalen CA: Parathyroid hormone and vertebral osteosclerosis in uremic patients. *Metabolism* 25:495-501, 1976.
9. Spencer H, Kramer L, Catza C, et al: Fluoride metabolism in patients with chronic renal failure. *Arch Intern Med* 140:1331-1335, 1980.
10. Sievers ML, Fisher JR: Diseases of North American Indians, In: *Biocultural Aspects of Disease*, Rothschild H (ed), New York, Academic Press, Inc., pp 211-279, 1981.



## Recent Advances in Cancer Cytogenetics

Jeffrey M. Trent, Ph.D.

Editor:  
Frederick Hecht, M.D.

### Abstract

Recent technologic advances in human cancer genetics may provide valuable new tools in the diagnosis and prognosis of human cancer. Two new techniques, premature chromosome condensation (PCC), and the cloning of human tumor stem cells in agar, are described. It is suggested that as substantial progress occurs in our understanding of chromosome structure and function, additional clinically useful insights into the genetic basis and nature of cancer will be gained.

As a result of important methodologic advances, the field of medical genetics has undergone tremendous growth in the past decade. One major area of advance followed the development of "chromosome banding" by Caspersen in 1970,<sup>1</sup> a method allowing unequivocal identification of each human chromosome. Clearly, in cases of congenital abnormalities, cytogenetic analysis continues to play an essential role in the clinical assessment of these disorders. However, in addition to constitutional genetic alterations, a large amount of current research is now directed toward genetic alterations of cancer cells. Although the clinical utility of cytogenetics in cancer is increasing,<sup>2</sup> the most often studied and useful observation remains the association of the Philadelphia (or Ph<sup>1</sup>) chromosome with chronic

From: University of Arizona Cancer Center, Section of Hematology/Oncology, Tucson, Arizona 85724.

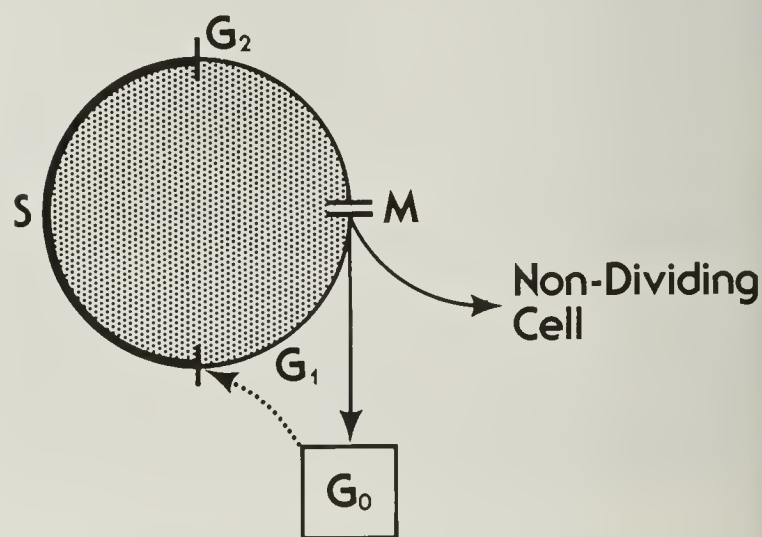


Figure 1  
Normal cell cycle of dividing cell populations, (after Baserga, *N Engl J Med* 304:453).

myelocytic leukemia. In the paragraphs that follow, preliminary evidence for the potential clinical utility of two new cytogenetic research techniques will be discussed.

First, a recent advance in the prediction of relapse in hematopoietic malignancies has been made using a technique called "premature chromosome condensation" (PCC). Secondly, increasing evidence from the study of solid tumors indicate cytogenetic analysis may be a useful adjunct to routine histopathology in some tumors.

Currently, the ability to provide an actual prognosis for the leukemic patient in clinically complete remission remains a problem to the physician. Specifically, once a patient achieves complete clinical remission, the size and growth kinetics of any existing residual leukemia burden cannot be accurately assessed. Reliance upon standard sequential morphologic analysis of peripheral blood or bone marrow permits clinical recognition of relapse. However, only at very high tumor cell numbers. To address this problem an initially curious research observation on cultured cells has now been applied to the clinical situation.

The observation of premature chromosome condensation began with its initial characterization by Johnson and Rao in 1970.<sup>3</sup> They observed that cells in the mitotic phase of the cell cycle (obtained from rapidly growing cell cultures) when fused by certain viruses to non-mitotic cells (i.e., those in the G<sub>1</sub>, S, or G<sub>2</sub> phase of the cell cycle, (Figure 1) caused the non-mitotic cells to prematurely condense their chromosomes (PCC). Further work by Walter Hittelman and co-workers at the M. D. Anderson Hospital in Houston has demonstrated that the morphology of the resulting PCCs gives an accurate representation of the cell cycle stage of the non-mitotic cells just prior to fusion. PCC from G<sub>1</sub> phase cells have one chromatid, G<sub>2</sub> phase two

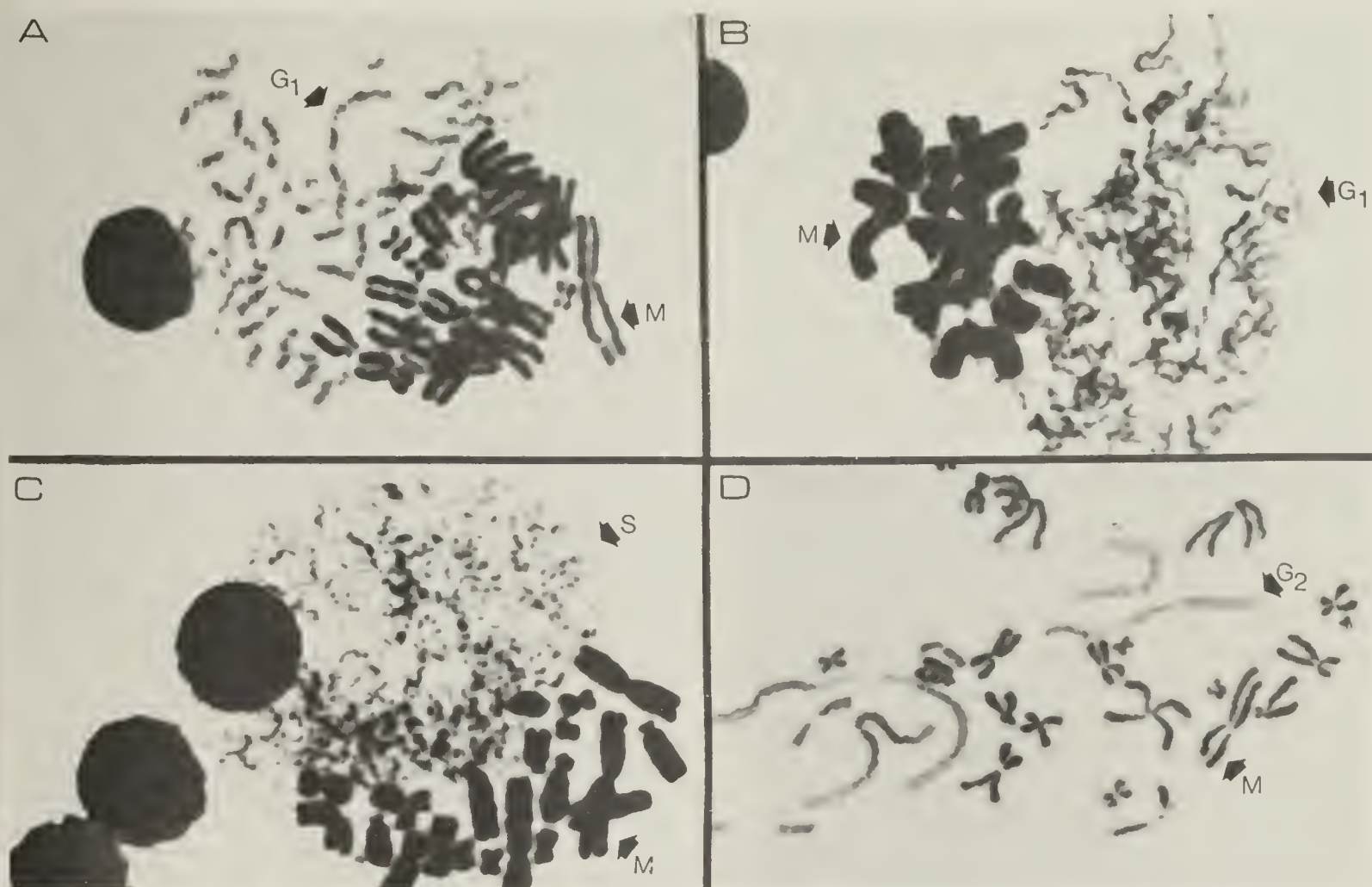


Figure 2

Interphase chromosomes revealed by premature chromosome condensation (PCC). (Original magnification Giemsa, X6, 250).

A,B. Interphase chromosomes from G<sub>1</sub> cells (arrow→G<sub>1</sub>) The darkly stained chromosomes (arrow→M) are from the mitotic inducer cells. Note the marked difference in G<sub>1</sub> chromosome condensation between cells in early G<sub>1</sub> (A), and late G<sub>1</sub> (B).

C. DNA synthetic (S-phase) cell (arrow→S) fused to a mitotic inducer cell (M). Note both single and double chromosome elements yielding a "pulverized" appearance.

D. Cell in the G<sub>2</sub> phase of the cell cycle (arrow→G<sub>2</sub>) displaying two chromatids per chromosome.

chromatids, and those from S phase fusion demonstrate a "pulverized" appearance with both single and double chromatids present. (Figure 2) Further, Hittleman and co-workers discovered that the morphology of the PCCs was sufficiently different to allow discrimination of the cells in early G<sub>1</sub> from those in the later phase of G<sub>1</sub>. (Figure 2 a, b).

Using this technique it was discovered that normal (non-cancer) cells appear to rest in the early G<sub>1</sub> phase of the cell cycle, while cancer cells predominantly rest late in the G<sub>1</sub> phase.<sup>4</sup> Making use of this difference, an initial attempt was made to determine whether the resting state of marrow cells from leukemic patients in remission could be used as an accurate predictor of relapse. This single feature (percent of cells in early vs. late G<sub>1</sub>) was essential in allowing remarkably accurate prediction of relapse in human leukemia.

A study was made by Hittleman of 19 patients (15 AML, 2 AMMol, 2 ALL) in clinically complete remission from acute leukemia.<sup>4</sup> Fourteen patients relapsed during the 18 month period and 11 of these, (78.6%) were predicted by the PCC technique. This prediction was

made because patients in remission (like normal patients) demonstrated a marrow predominately rich in *early* G<sub>1</sub> cells. However, as patients approached relapse, the percentage of late G<sub>1</sub> cells dramatically increased. The median time from the observation of a high fraction of cells resting in late G<sub>1</sub> (described as a high "proliferative potential index") (PPI) to relapse was 3.5 months *prior* to any clinical evidence of relapse. In contrast, the progression to clinically recognizable disease in patients with cells predominantly in the early G<sub>1</sub> phase (low PPI) was eight months. Although these results are preliminary, they certainly suggest potential utility of the PCC technique in the early prediction of relapse in human leukemia. Currently, in collaboration with Dr. Brian Durie, my laboratory at the University of Arizona Cancer Center is conducting similar studies on patients with other hematopoietic cancers. Should a large number of cancers be amenable to study by this technique, it may provide a valuable adjunct to routine cytopathology in patients in apparent clinical remission. Unfortunately, the detailed and time-consuming nature of PCC studies precludes its general application at this



time. However, attempts are being made to modify and simplify the procedure to allow its availability to most clinical laboratories.

The second technique of interest is further away from routine clinical application, but does represent an interesting new approach in the study of solid tumor genetics. To date, virtually all of the major advances in cancer cytogenetics have occurred in hematologic malignancies. Studies of human solid tumors using either direct or short-term culture methods have been beset with technical difficulties arising from inherently low mitotic indices and mitotic figures which are morphologically suboptimal. An example of the paucity of data on solid tumor cytogenetics was presented in a recent survey of the world literature on chromosomes in cancer by Mittleman and Levan (1978).<sup>5</sup> Based on their report, studies of solid tumors represented less than one percent of all cases in which chromosome banding analysis had been performed. With so little data on human solid tumors, it is readily understandable why little attention or expectation has arisen for tumor-specific chromosome change existing in human solid tumors. Encouragingly, recent findings suggest that tumor-associated chromosome change may be more prevalent in solid tumors than has previously been supposed. In order to study chromosomes from a variety of human cancers, a method has been developed which takes advantage of a recently developed soft agar colony assay, devised for growth of tumor progenitor-stem cells, (the key cells in repopulation or metastasis of a cancer.) Developed by Drs. Hamburger and Salmon of the University of Arizona Cancer Center in 1977, this technique allows the *in vitro* testing of chemotherapeutic agents against a large variety of human tumors with surprising clinical efficacy.<sup>6</sup> Recently, I initiated an analysis of the genetic constitution of these clonogenic (colony forming) tumor cells. Fortunately, the conditions of agar culture provide a marked improvement for demonstrating the number of tumor cells undergoing mitosis. This permits detailed chromosome analysis of a large number and variety of solid and hematopoietic cancers.<sup>7</sup> The results of our initial study on ovarian carcinoma cells were as follows: The most important (and unexpected) result was the finding of the association of a specific chromosome alteration common to ovarian neoplasms. Using chromosome banding analysis we found the identical simple deletion of chromosome 6 (broken midway along the long arm) in four of the first six ovarian carcinoma patients we analyzed.<sup>8</sup> (Figure 3). Independent confirmation of the importance of chromosome 6 deletions in ovarian cancer was provided in a series of nine patients studied by Wake, et al,<sup>9</sup> at Roswell Park Memorial Institute in New York. Their experience was similar to our study, suggesting approximately 90% of patients with ovarian cancer displayed the chromosome 6 marker. These results have now received substantial corroboration from a number of additional cytogenetic

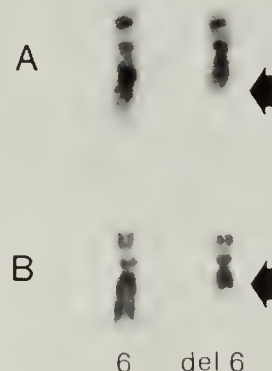


**Figure 3**  
Normal and partially deleted (arrow) chromosome 6 from two patients (A,B). Chromosomes are treated with proteolytic enzymes and then counterstained with Giemsa to visualize "banding." (Original magnification G-banding, X6,260).

laboratories.<sup>10</sup> How does this finding relate to clinical oncology? One obvious possibility is that patients with intra-abdominal malignancies of unknown primary origin may benefit from cytogenetic analysis in addition to routine histopathology. Those cases in which chromosome 6 abnormalities were present would provide support for a diagnosis of ovarian carcinoma. In as much as ovarian adenocarcinomas are more responsive to therapy than many other neoplasms of intraperitoneal origin, identification of this tumor type is important.

Although the current studies in ovarian carcinoma only represent one tumor type, other solid tumors, after receiving sufficiently detailed study, appear also to demonstrate such tumor-chromosome association. For example, in a recent report from Dr. J. Wheng-Peng of the National Cancer Institute,<sup>11</sup> sixteen different cell cultures derived from small cell carcinoma of the lung, have demonstrated a specific deletion of one chromosome 3. The relevance of this finding to primary tumor samples is currently under study. The agar-colony-cytogenetic system may play an increasingly important role in the study of many human solid tumors by increasing the number of mitotic tumor cells available for cytogenetic analysis.

These two techniques represent only a few of many cytogenetic advances which will receive additional study in the near future. It is reasonable to anticipate that as substantial progress occurs in our understanding of chromosome structure and function, additional clinically useful insights on the genetic basis of cancer will be gained.

## Glossary of Terms

**Philadelphia chromosome:** A partially deleted chromosome 22 with material translocated to chromosome 9 or another chromosome; often found in chronic myelocytic leukemia.

**Premature chromosome condensation (PCC):**

Condensation of chromosomes in phases of the cell cycle other than in mitosis; also called prophase.

**G<sub>1</sub>:** Gap No. 1 in the cell cycle.

**S:** Time in cell cycle when DNA Synthesis occurs.

**G<sub>2</sub>:** Gap No. 2 in the cell cycle.

**AML:** Acute myelocytic leukemia.

**AMMoL:** Acute myelomonocytic leukemia.

**ALL:** Acute lymphocytic leukemia.

**Chromosome 6:** The largest of the autosomes (non-sex chromosomes) in the C (6-12+X) group; found partially deleted often in ovarian carcinomas.

**Chromosome 3:** The smallest chromosome in the A (1-3) group; a partial deletion of this chromosome may mark small cell carcinomas of the lung.

Edited by F. Hecht

## References

1. Caspersen T, Zech L, Johnsson C, Modest ES: Identification of human chromosomes by DNA-binding fluorescent agents. *Chromosoma* 30:215, 1970.
2. Rowley JD: Chromosome abnormalities in cancer. *Cancer Genet Cytogenet* 2:175, 1980.
3. Johnson RT, Rao PN: Mammalian cell fusion: Induction of premature chromosome condensation in interphase nuclei. *Nature* 226:717, 1970.
4. Hittelman WN, Lowanda BC, Dosik MD, McCredie KB: Predicting relapse of human leukemia by means of premature chromosome condensation. *N Engl J Med* 303:479, 1980.
5. Mitelman F, Levan G: Clustering of aberrations to specific chromosomes in human neoplasms. *Hereditas* 89:207, 1978.
6. Salmon SE, Hamburger AW, Soehnlen BJ, Durie BGM, Alberts DS, Moon TE: Quantitation of differential sensitivity of human tumor stem cells to anticancer therapy. *N Engl J Med* 298:1321-1327.
7. Trent JM, Salmon SE: Human tumor karyology: Marked analytic improvement by short term agar culture. *Br J Cancer* 41:867, 1980.
8. Trent JM: Cytogenetic analysis of human tumor cells cloned in agar. In: *In Cloning of Human Tumor Stem Cells* Salmon SE, (ed), A Liss & Co., New York, pp 165-178, 1980.
9. Wake N, Hreshehshyn MW, Piver SM, Matsui SI, Sandberg AA: Specific chromosome change in ovarian cancer. *Cancer Genet Cytogenet* 2:87, 1980.
10. Atkin NB, Baker MC: Specific chromosome change in ovarian cancer. *Cancer Genet Cytogenet* 3:275, 1980.
11. Whang-Peng J, Bunn PA, Kao-Shan E, Lee E, Minna J, Gozdar A: Non-random chromosomal abnormalities (3P)-in continuous cultures of small cell lung cancer (SCLC). *Proc Am Assoc Cancer Res* 22:45, 1981, Abstract #179.



## Computed Tomography in the Diagnosis of Lumbosacral Disc Herniation

Ronald D. Hanson, M.D.

### Editors:

James Frey, M.D.

Barry Hendin, M.D.

Lawrence Stern, M.D.

### Abstract

The feasibility of evaluating herniated nucleus pulposus (HNP) by computed tomography (CT) is examined. In twenty-two cases of clinically suspected disc disease, herniation was identified by CT in eleven patients. In seven patients who subsequently underwent laminectomy, HNP was confirmed in all seven instances. Preliminary experience with the method indicates that CT is a useful technique for diagnosing disc herniation.

**Key Words:** Lumbar Spine, Herniated Nucleus Pulposus, Computed Tomography.

### Introduction

The diagnosis of herniated nucleus pulposus (HNP) is sometimes difficult to establish clinically and radiographically. Although lumbar myelography is the established radiological technique for evaluating suspected disc disease, it is not completely reliable<sup>1,2</sup> and may be associated with significant physical and emotional patient side effects. Computed tomography (CT) is evolving as an accurate alternative screening technique for diagnosing HNP with the advantages of being a rapid noninvasive method that requires no intrathecal or intravenous contrast material administration.

From: Tucson Medical Center and currently at University of Arizona Health Sciences Center, Tucson, Arizona 85724.





Figure 1

Lateral digital radiograph (scout view). Cursor is used to select the disc space level and optimal gantry angulation at L5-S1.

## Methods

Until recently, the use of conventional CT for evaluating patients with suspected disc herniation has been unsatisfactory. Because of the commonly accentuated lordosis at the L4-5 and L5-S1 levels where the majority of HNP's occur, it was not previously possible to consistently produce images that paralleled the vertebral end plates. As a result, CT images through the areas of suspected lesions were often oblique to the intervertebral disc space and produced image artifacts difficult to distinguish from true disc herniation. Accurate diagnosis of spinal lesions is greatly enhanced by tomographic imaging parallel to the intervertebral space.<sup>3</sup>

Tucson Medical Center (TMC) has recently updated a GE CT/T 8800 scanner to provide a lateral digital ("Scout View") radiograph which is subsequently used to select the desired level and angle of detector housing or gantry necessary to produce images through a plane parallel to the intervertebral disc (Figure 1). "Slices" 5mm thick are then obtained through the region of suspected herniation.

The CT evidence of HNP consists primarily on the demonstration of displacement of epidural fat by the posterior protrusion of the disc margin and indentation on the dural sac.<sup>4</sup> Supportive findings include compression and displacement of nerve roots, obliteration of the epidural fat with displacement of the dural sac, or calcification within the posterior disc protrusion.<sup>5</sup> The normal CT lumbar anatomy is demonstrated in Figure 2.

Forty-seven consecutive CT examinations of the spine at TMC were reviewed. Of these, the clinical diagnosis of a herniated disc was suspected in 22 cases. The CT criteria listed above were employed for the evaluation of HNP in these cases.

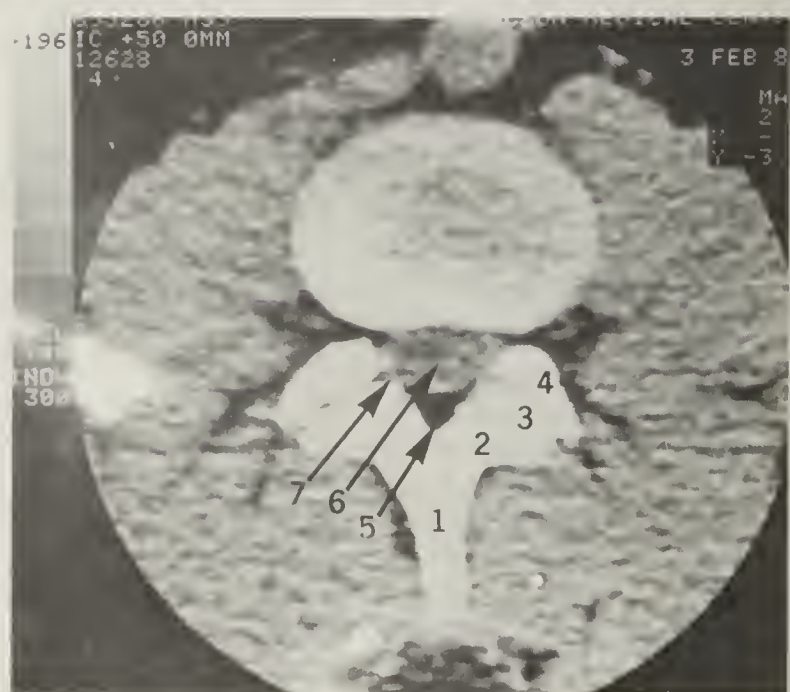


Figure 2

CT image of normal L4-5 disc (A) "bone window" (B) "soft tissue window" 1= spinous process L4, 2=left lamina dura, 3=left L4 inferior facet, 4= left L5 superior facet, 5=epidural fat posterior to dural sac, 6=dural sac, 7=right ligamentum flavum. Note that the slightly concave posterior disc margin is seen anterior to the dural sac and separated from it by a thin stripe of epidural fat.

## Results

Tomographic studies diagnostic of a herniated disc were obtained in 11 of the 22 patients clinically suspected of having lumbar disc disease (3 HNP's were at L4-5, 8 HNP's at L5-S1). Subsequently, seven patients with CT diagnosed HNP were explored with confirmation of disc herniation in all seven cases. The four remaining patients with HNP diagnosed by CT are being treated conservatively, with persistence of sciatic symptoms in all four (2 to 4 months after CT diagnosis).

In one case of surgically confirmed disc herniation, the CT study was interpreted as negative for disc disease,



Figure 3

Herniated L4-5 disc. A. Free left posterolateral disc fragment. B. Metrizamide myelogram showing partial amputation of left nerve root sheath.

Note: Small disc fragment subsequently confirmed at surgery.

Table  
Ct Results in 22 Patients with Clinically Suspected Lumbar Disc Herniation

| CT Findings                         | Number of Patients         |
|-------------------------------------|----------------------------|
| Herniated nucleus pulposus          | 11 (8 at L5-S1; 3 at L4-5) |
| Hypertrophic degenerative facets    | 7                          |
| Bulging annulus fibrosus            | 2                          |
| Abnormalities from previous surgery | 1                          |
| Spinal stenosis                     | 1                          |

but the lesion was predicted accurately by lumbar myelography. This scan was technically suboptimal due to the patient's extreme lordosis which prevented imaging parallel to the disc space. In a second case of surgically confirmed HNP, a metrizamide myelogram failed to demonstrate the herniation which was well visualized by CT. In this instance, there was extreme lateral herniation so that no contact was made with the contrast column by the disc fragment.

In the remainder of the 22 cases of clinically suspected disc disease, the CT scans (although negative for HNP) were all abnormal. Hypertrophic degenerative facet joint changes with foraminal encroachment were the predominant CT abnormalities identified in this group. The CT findings are summarized in the Table.

Representative scans of the positive CT studies of lumbar disc herniation are shown in Figures 3-5.

#### Discussion

With continued refinements in CT technology, radiologists have been anxious to apply the technique to evaluation of suspected lumbosacral disc disease. The potential advantages of CT over positive contrast myelography include: 1) Cost effectiveness. In this institution, a complete CT examination of the lumbosacral spine is slightly less than a contrast myelogram. However, myelography is generally an inpatient procedure involving hospitalization for at least one day. This may be extended if significant side effects or complications develop. The total patient cost for a lumbosacral CT study performed on an outpatient exam is less than one-third of the total cost of an inpatient conventional myelogram. 2) Absence of side effects. The frequency of post-myelography headache approaches 40%-50% even with adequate supportive care and positioning precautions. Nausea and vomiting are also frequent patient complaints. CT spine studies are completely symptom free. 3) Absence of major complications. Although rare, positive contrast studies do have potential risks. Major motor seizures have been noted with use of the water soluble contrast medium, metrizamide. The development of arachnoiditis has been associated with use of the oil-base medium, Pantopaque. 4) Noninvasiveness. A complete CT exam of the lumbosacral spine requires no intravenous or intrathecal injection. 5) Rapidity. A CT study can be





Figure 4

Herniated L5-S1 disc. Left posterolateral displacement of the S1 nerve root.

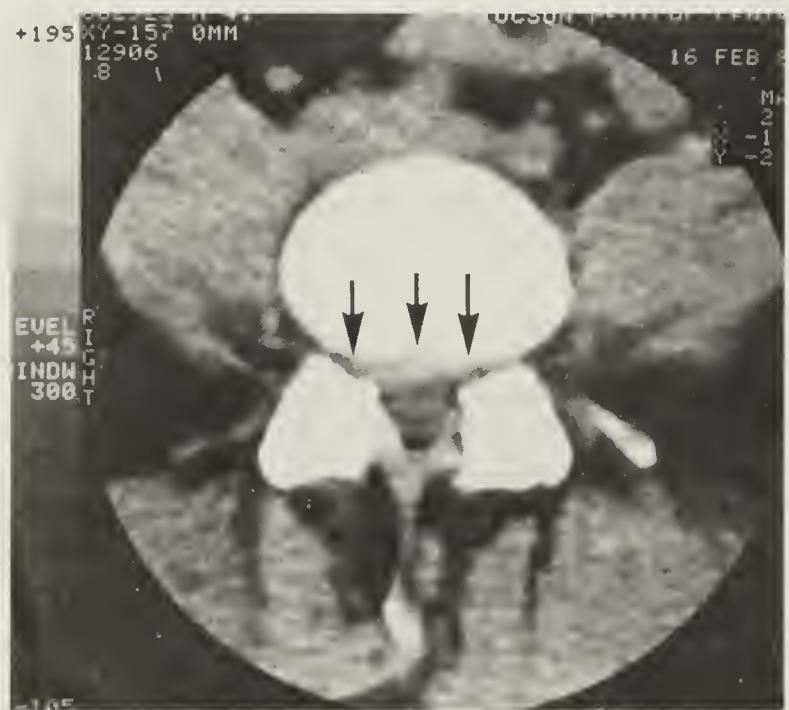


Figure 5

Herniated L4-5 disc. Right posterolateral herniation with compression of the dural sac.

performed in approximately half the time required for a lumbar myelogram.

Until recently, these potential advantages of CT have not been exploited by radiologists because it was difficult to obtain CT images through the plane of the intervertebral disc space. By using the digital radiograph technique with appropriate gantry angulation, these difficulties can be overcome.

In this small series of CT examinations of the lumbosacral spine at TMC using these new capabilities, CT was found to be an effective technique for evaluating suspected disc herniation. These results are in

agreement with other studies recently reported in radiologic literature. Raskin and Keating reported a study on 100 exams in which CT was found to be equal in accuracy to conventional myelography for evaluating disc herniation.<sup>6</sup>

Although myelography currently is the "gold standard" for diagnosing HNP, a normal myelogram does not absolutely exclude disc herniation. For example, if there is a large epidural space, even midline disc herniation may not impinge on the contrast column. Similarly, in extreme lateral herniation (as in Figure 3), there may be no contact between the disc fragment and thecal sac.<sup>1</sup>

Because of its comparable accuracy to myelography and its noninvasiveness, CT is currently being used by many clinicians at TMC as the initial study in patients with low back pain and suspected disc herniation. A negative CT study generally is not followed by additional radiologic examinations. A CT exam positive for HNP is usually followed by a positive contrast myelogram before laminectomy is considered. With use of CT in this way, a cost effective and judicious diagnostic evaluation of patients with suspected HNP can be achieved. When used in this manner, CT can be complimentary to myelography in the investigation of lumbosacral disease.

#### Acknowledgements

Norman Komar, M.D., Neuroradiologist, Ltd., Tucson, Arizona for contribution and review of case material.

#### References

1. Sackett JF, Strother CM: *New Techniques in Myelography*. Hagerstown, Harper & Row, 1979, pp 70-87.
2. Federle MP, Moss AA, Margolin FR: Role of computed tomography in patients with "Sciatica." *J Comput Assist Tomogr* 3:335-341, 1980.
3. Hirsch JC, Leve WM, Berninger WH, et al: CT of the lumbosacral spine: Importance of tomographic planes parallel to vertebral end plates. *Am J Neurorad* 1:551-556, 1980.
4. William AL, Haughton VM, Syvertsen A: Computed tomography in the diagnosis of herniated nucleus pulposus. *Radiology* 135:95-99, 1980.
5. Carrera GF, William AL, Haughton VM: Computed tomograph in Sciatica. *Radiology* 137:433-437, 1980.
6. Raskin SP, Keating JW: The relative accuracy of CT and myelography for lumbar disc. Presented at the American Society of Neuroradiology, Nineteenth Annual Meeting, Chicago, Illinois, April 1980.



# Prevention of Chemotherapy-Induced Nausea and Vomiting in Patients with Cancer

Matti S. Aapro, M.D.

Editors:

David S. Alberts, M.D.

Ellen M. Chase, B.S.

Nausea, vomiting, and anorexia are common side effects of therapy with anticancer drugs and are sometimes difficult to control. Their severity may be such that some patients will refuse further treatment, even though an objective tumor regression has been documented.

Many antiemetic drugs have been tested in the setting of postanesthetic nausea and vomiting, when mechanisms may or may not be the same as for the chemotherapy-related sickness. Moreover, some chemotherapeutic drugs may have very different mechanisms of action to induce nausea and vomiting. Therefore, I will not comment on studies reporting

antiemetic efficiency of a drug in the postanesthetic setting but will limit this discussion to the studies done with patients undergoing chemotherapy.

The generally accepted emetic mechanism of chemotherapy agents involves the chemoreceptor trigger zone located bilaterally on the floor of the fourth ventricle, from which impulses are then directed to the vomiting center located in the medulla of the brain stem. Some chemotherapeutic drugs might also act through initiation of receptors in the gastrointestinal tract which then transmit impulses to the brain through the vagal and sympathetic afferents. Nausea and vomiting related to chemotherapeutic agents can also have a strong psychogenic component or be due to gastritis, bowel obstruction, or hypercalcemia.

Because of the various causes of nausea and vomiting

From: University of Arizona Health Sciences Center, Section of Hematology/Oncology, Department of Internal Medicine, Tucson, Arizona 85724



related to chemotherapeutic agents, even placebo treatment has been found to have some effectiveness.<sup>1</sup> However, the most commonly used antiemetic agents are phenothiazines like prochlorperazine (Compazine®) and thiethylperazine (Torecan®). Unfortunately, these agents are efficacious in less than 50% of the patients when tried in controlled studies.<sup>1-3</sup> They frequently cause some sedation and about one percent of the patients will also experience severe extrapyramidal side effects.

The butyrophenones are neuroleptics that have similar side effects, but are more potent than the phenothiazines. Various reports have discussed the effectiveness of haloperidol<sup>4,5</sup> and droperidol<sup>6</sup> when given to patients undergoing chemotherapy. It is difficult to determine the real value of these drugs as no studies have been reported until now where they are compared at equivalent doses to the "standard" phenothiazines. The main advantage of haloperidol seems to be found in patients receiving cis-platinum.

Diazepam has been shown to be of value as an antiemetic agent for patients undergoing cis-platinum-based chemotherapy.<sup>7</sup> However, this drug produces somnolence and is not recommended for use with outpatients.

Many other drugs have been reported as having some degree of effectiveness. Intramuscular benzquinamide, for example, has shown a response rate of 29% when compared to haloperidol (54%) in patients failing prochlorperazine,<sup>5</sup> but has been found to be ineffective when taken orally.<sup>3</sup> Trimethobenzamide does not seem to be better than a placebo.<sup>8</sup>

Delta-9-tetrahydrocannabinol (THC), the effective substance of marijuana, has shown some promise. The first reported studies showed that complete relief was obtained in 46% of the patients as compared to 21% with prochlorperazine.<sup>9,10</sup> Other studies<sup>11,12</sup> conducted in a fairly young population (median age less than 32 years) supported these results. In an older patient population (61 years), THC was found to be similar to prochlorperazine with nausea and/or vomiting in 58% of the patients (versus 81% with placebo). Furthermore, the side effects of THC were judged intolerable by 32% of the patients (versus 3% for placebo and 2% for prochlorperazine).<sup>13</sup> Several other reports have commented on the tolerability of the side effects of THC<sup>14-18</sup> and its antiemetic properties that seem to be limited to certain chemotherapeutic drugs.<sup>18,19</sup> Hence, although it is a very interesting drug, THC may not be the ultimate answer to the problem.

Nabilone, a derivative of THC, has been reported to give complete relief in eight percent of patients (versus none) when compared to prochlorperazine and partial relief in an additional 72% of patients (versus 32%). At the dosage used, however, nearly all patients experienced considerable somnolence and dizziness.<sup>11,20</sup>

Metoclopramide (Reglan®), a derivative of neuroleptics that promotes gastric emptying and motility, also has antiemetic effects. However, when

tried at low doses, it has generally been found to be ineffective against nausea and vomiting induced by chemotherapeutic agents.<sup>1,11</sup> A recent report claimed that it was useful in ten of eleven patients receiving cis-platinum who had not benefitted from the usual antiemetics.<sup>21</sup> A randomized trial indicates that metoclopramide at a low oral dose is comparable to prochlorperazine.<sup>22</sup> At high intravenous doses, this agent has been found to be effective,<sup>23,24</sup> and a study at the University of Arizona Cancer Center will compare it to high-dose steroids.

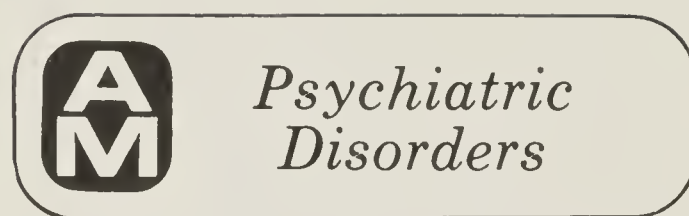
All of the agents that have been discussed show some degree of efficacy in controlling chemotherapy-induced nausea and vomiting. All of them, however, are accompanied by undesirable side effects that render their use in an outpatient setting difficult or almost impossible. Several reports have discussed the effectiveness of parenterally administered steroids as antiemetics.<sup>25,26</sup> On this basis, a pilot study was done at the University of Arizona Cancer Center. The authors were able to determine the effectiveness of orally administered high-dose steroids, which inhibited nausea and vomiting in 50% of patients failing prior antiemetics and in 71% of those who had not received antiemetics previously.<sup>27</sup> Other favorable results have recently been reported.<sup>28,29</sup> This drug, which has no important side effects when used for 72 hours, has evident advantages for outpatients. Anti-inflammatory drugs which might have a similar proposed mechanism of action (inhibition of prostaglandin synthesis) are also being considered.<sup>30</sup>

In summary, the control of nausea and vomiting due to chemotherapeutic agents is still difficult. Some progress has recently been made and forthcoming studies should define the role of new agents like THC, metoclopramide, and steroids. With the identification of more effective, clinically useful antiemetic agents, the general care of the patient with cancer will be greatly improved.

## References

1. Moertel CG, Reitemeier RJ, Gage RP: A controlled clinical evaluation of antiemetic drugs. *JAMA* 186:116-118, 1963.
2. Moertel CG, Reitemeier RJ: Controlled clinical studies of orally administered antiemetic drugs. *Gastroenterology* 57:262-268, 1969.
3. Moertel CG, Schutt AJ, Hahn RG, O'Fallon JR: Oral benzquinamide in the treatment of nausea and vomiting. *Clin Pharmacol Ther* 18:554-557, 1975.
4. Plotkin DA, Plotkin D, Okun R: Haloperidol in the treatment of nausea and vomiting due to cytotoxic drug administration. *Curr Ther Res* 15:599-602, 1973.
5. Neidhardt JA, Gagen M, Young D, Wilson HE: Specific antiemetics for specific cancer chemotherapeutic agents: Haloperidol versus benzquinamide. *Cancer* 47:1439-1443, 1981.
6. Grossman B, Lessin LS, Cohen P: Droperidol prevents nausea and vomiting from cis-platinum. *N Engl J Med* 301:47, 1980.
7. Robins HI, Ershler WB, De Jongh L, Chang Y-C, Drozdowicz PM, Carr BI, Meyer DK: Antiemetic effect of intravenous diazepam in patients receiving cis-diamminedichloroplatinum II. A pilot study. *Med Ped Onc* 7:247-249, 1979.
8. Bardfeld PA: A controlled double-blind study of trimethobenzamide, prochlorperazine and placebo. *JAMA* 196:796-798, 1966.
9. Sallan SE, Zinberg NE, Frei E III: Antiemetic effect of delta-9-tetrahydrocannabinol in patients receiving cancer chemotherapy. *N Engl J Med* 293:795-797, 1975.

10. Sallan SE, Cronin C, Zelen M, Zinberg NE: Antiemetics in patients receiving chemotherapy for cancer. A randomized comparison of delta-9-tetrahydrocannabinol and prochlorperazine. *N Engl J Med* 302:135-138, 1980.
11. Chang AE, Shilling DJ, Stillman RC, Goldberg NH, Seipp CA, Barofsky I, Simon RM, Rosenberg SA: Delta-9-tetrahydrocannabinol as an antiemetic in cancer patients receiving high-dose methotrexate; a prospective, randomized evaluation. *Ann Intern Med* 91:819-824, 1979.
12. Ekert H, Waters KD, Jurk IH, Mobilha J, Loughnan P: Amelioration of cancer chemotherapy-induced nausea and vomiting by delta-9-tetrahydrocannabinol. *Med J Aust* 2:657-659, 1979.
13. Frytak S, Moertel CG, O'Fallon JR, Rubin J, Creagan ET, O'Connell MS, Schutt AJ, Schwartz NW: Delta-9-tetrahydrocannabinol as an antiemetic in cancer patients receiving high-dose methotrexate: A comparison with prochlorperazine and a placebo. *Ann Intern Med* 91:825-830, 1979.
14. Colls BM, Ferry DG, Gray AJ, et al: The antiemetic activity of tetrahydrocannabinol vs metoclopramide and thiethylperazine in patients undergoing cancer chemotherapy. *NZ Med J* 91:449-451, 1980.
15. Noyes R, Jr, Brunk SF, Avery DH, Canter A: The analgesic properties of delta-9-tetrahydrocannabinol and codeine. *Clin Pharmacol Ther* 18:84-89, 1975.
16. Kluin-Neleman JC, Neleman FA, Meuwissen OJAT, et al: Delta-9-tetrahydrocannabinol (THC) as an antiemetic in patients treated with cancer chemotherapy: A double-blind crossover trial against placebo. *Vet Human Toxicol* 21:338-340, 1979.
17. Lucas VS, Jr, Laslo J:  $\Delta^9$ -Tetrahydrocannabinol for refractory vomiting induced by cancer chemotherapy. *JAMA* 243:1241-1243, 1980.
18. Orr LE, McKernan JF, Bloome B: Antiemetic effect of tetrahydrocannabinol compared with placebo and prochlorperazine in chemotherapy-associated nausea and emesis. *Arch Intern Med* 140:1431-1433, 1980.
19. Chang AE, Shilling DJ, Stillman RC, Goldberg NH, Seipp CA, Barofsky I, Rosenberg SA: A prospective evaluation of delta-9-tetrahydrocannabinol as an antiemetic in patients receiving adriamycin and cytoxan chemotherapy. *Cancer* 47:1746-1751, 1981.
20. Herman TS, Einhorn LH, Jones SE, Nagy C, Chester AB, Dean JC, Furnas B, Williams SD, Leigh SA, Dorr RT, Moon TE: Superiority of nabilone over prochlorperazine as an antiemetic in patients receiving cancer chemotherapy. *N Engl J Med* 300:1295-1297, 1979.
21. Kahn T, Elias EG, Mason GR: A single dose of metoclopramide in the control of vomiting from *cis*-dichlorodiammineplatinum (II) in man. *Cancer Treat Rep* 62:1106-1107, 1978.
22. Frytak S, Moertel CG, Eagan RT, O'Fallon JR: A double-blind comparison of metoclopramide and prochlorperazine as antiemetics for platinum (CDDP) therapy. *Proc ASCO* 22:421, 1981.
23. Gralla RJ, Squillante A, Itri LM, Pisko S, Kelsen DP, Young CW: High dose metoclopramide: Effective antiemetic against *cis*-platin (DDP) in randomized trials vs. placebo and prochlorperazine (PCP). *Proc ASCO* 22:420, 1981.
24. Strum SB, Opfell RW, McDermid JE, Reich LP: Intravenous metoclopramide (MCP) prevention of *cis*-platinum (DDP)-induced nausea and vomiting. *Proc ASCO* 22:391, 1981.
25. Baker LS, Lokey JL, Price NA, Winokur SH, Bowen J, Taylor A: Letter. *N Engl J Med* 301:728, 1979.
26. Rich WM, Abdulhayoglu G, DiSaia PJ: Methylprednisolone as an antiemetic during cancer chemotherapy — a pilot study. *Gyn Onc* 9:193-198, 1980.
27. Aapro MS, Alberts DS: High-dose oral dexamethasone for prevention of *cis*-platin-induced vomiting. Submitted *Cancer Chem Pharm*, 1981.
28. Lee BJ: Methylprednisolone as an antiemetic. (Letter to the Editor). *N Engl J Med* 304:486, 1981.
29. Drapkin R, McAloon E, Sokol G, Paladine W, Marks R: The antiemetic effect of dexamethasone in patients receiving *cis*-platinum. *Proc ASCO* 22:340, 1981.
30. Stryker JA, Demers LM, Mortel R: Prophylactic ibuprofen administration during pelvic irradiation. *Int J Rad Onc Biol Phys* 5:2049-2052, 1979.



## Virtue

William B. McGrath, M.D.

Editor:

Thomas E. Bittker, M.D.

Everyone bewails the permissiveness of modern society (partly because we are too decrepit to take advantage of it?) Anyway, the term and the concept have become rather hackneyed and threadbare.

A corollary concern is the "medicalization" of social or moral deviance. Every imaginable sin or vice has been brought into the purview of genetics and psychosocial biology (vaporous term) and especially psychiatry. May we soon be delivered from platitudes about low self esteem (formerly "inferiority complex"), which has been blamed for everything from child molesting to alcoholism. It is an example of our inverted thinking: Low self esteem results in failure and failure results in low self esteem. In reality self esteem has to be earned and can be heightened only by achievement.

From: 4910 North 44th Street, A-6, Phoenix, Arizona 85018



Legal and then religious orientations have commonly given way to the more alluring demonologies of science. We empathize with Dr. Menninger's plaintive and nostalgic question: "What Ever Happened to Sin?"

It is ridiculous to imagine that we make vice disappear by calling it another name, disease, and thereby eliminate individual culpability. A more cogent argument might be made that by mitigating the consequences of transgression we seem to have lessened the seriousness of transgression. This is true, as is illustrated by the availability of abortion or the rapidly successful treatment of venereal infections or addictions.

However, nature does keep score — and with almost mathematical implacability. Sloth will not repair the plumbing or deodorize the bathroom. Gluttony is gluttony and still leads to obesity, whether we view it as a vice or rationalize it with endocrine and psychological explanations or excuses.

An illustration on a broader scale might be drawn from our experience with "de-institutionalization." We stopped "warehousing" the incurably psychotic and we rescued criminals from the dehumanizing environment of the penitentiary. With nearsighted piety we hastened the return of these misfits to the community. And the results? The mentally ill, instead of being free, are far more degradingly confined in flop-houses and county jails. And for every criminal released to "work rehabilitation" programs or probation there are a dozen law abiding citizens who have put themselves behind bars. Iron grill work has been installed around the windows and doors of all the houses in our neighborhood. And the affluent have moved into prisons, called condominiums, with armed guards at the gates.

We have mentioned the arithmetic of nature. We have been blind to one side of an equation. *When we abolish vice we abolish virtue!*

Virtue by one definition is absention from vice. It would serve no purpose to get on a semantic merry-go-round: Is virtue the absence of vice or is vice the absence of virtue? We still have to recognize our devastating hemianopsia: If nothing is bad then nothing is good! When we pulled up the defining anchors of wrong we failed to set the sails toward any destination of right.

A vivid illustration characterized the Viet Nam conflict or, earlier, the German nation under Naziism. For the first time in military history it seemed almost as patriotic or heroic to be a conscientious objector or deserter as to cling to the soldier's unquestioning obedience.

In all areas of human functioning we go on ignoring the important half of the question: Not, what is wrong, but what is right? Vice and virtue are inseparably welded together as antitheses or opposites. Their juxtaposition has permitted our almost exclusive preoccupation with the darker side of human character. We argue: What is wrong with pornography or promiscuity or sexual

deviations? Or, what is wrong with the "realistic" portrayal of sordidness and violence in the media? Our heros and heroines are liars, adulterers and cry-babies.

No one seems to have considered what is right about chastity or honesty or valor or integrity. Having once questioned what is bad we can no longer take for granted what is good. We cannot presume that people remember the natural virtues or realize that they have intrinsic values and that such values have to be learned and can be taught.

A second major error has stunted and skewed our philosophical thinking. *The mistake is to equate morality with religion.*

Such is fostered by faddist slogans, like Moral Majority, with their implication that only the fundamentalist Christian might qualify. Again, how parochial and insultingly self-righteous is any such statement as, "That is not a Christian thing to do." Note that even the title of this article, "Virtue," provokes an almost reflex supposition that it will be some kind of sermon.

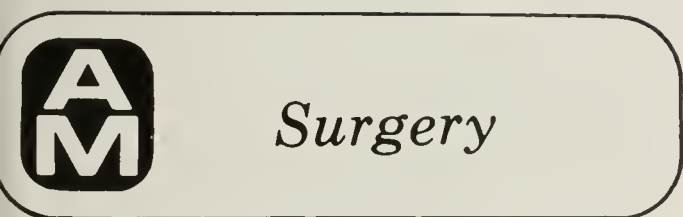
Actually our most basic virtues have little or no direct relationship to religion. They are not derived from dogma. A denominational church may offer graceful and hallowed expression to a particular ideal. But the church did not give birth to it and surely it has no monopoly or franchise on it.

Secular virtues are the very bones of civilization. And of all the virtues the most crucial in our times is simple civility.

This is the social contract by which each of us can and should and finally must expect the other to act in good faith. If each or either of us intends to lie or cheat or to be rude and unkind, then the whole system will fall apart. Constitutional restraints or the separation of church and state cannot be interpreted as prohibiting the inculcation of personal morality.

The preachers of the world may continue their macabre dance, stamping out evil. It is our more urgent duty to cultivate civility and to study how it can be taught by precept and example.

Lastly it is important to realize that virtues are not luxuries. They are not social amenities or the ornaments of the fortunate and blessed. No, they are private responsibilities and they are absolutely essential to the survival of the individual — for his own sake and for the reciprocal benefit of his companions on the difficult journey of becoming civilized.



## Microvasovasostomy

David A. D. Todd, M.D., F.A.C.S.  
Gordon A. McLorie, M.D., F.R.C.S. (C)

Editor:  
Jack Friedland, M.D.

Prior to 1975 many authors published results of vas reconstruction with success judged by sperm in the ejaculate ranging from 30% to 85% with a pregnancy rate generally less than 30%. The use of the microscope to facilitate the anastomosis has been popularized by Silber who claims sperm to be present in the ejaculate in 84% of his patients and 71% pregnancy rate in their partners.<sup>4-7</sup> Schmidt,<sup>2,3</sup> who has been writing about vasectomy reconstruction since 1959 has acknowledged the increased success from the use of the microscope. The increased visualization has resulted in better accuracy and generally speaking, in much better results, implying that many of the previous failures were due to technical inadequacy rather than to spermatogenic failure or antibody formation.

### Surgical Technique

The lumen of the vas is approximately one millimeter in diameter and the external diameter two to three times that size. Some surgeons are able to perform a two layer anastomosis.<sup>1,6</sup> The authors tried on numerous occasions to emulate this feat, but have been unable to do so. In order, therefore, to obtain accurate apposition,

to achieve a mucosa to mucosa closure, and at the same time prevent cross-luminal stitches, a temporary stent of 3-0 monofilament nylon is used. The end without the needle is passed along the inguinal vas for about three inches and this also ascertains luminal patency. The needle is then passed into the lumen of the testicular end of the vas and brought out through the side wall as far along as possible. The anastomosis is then carried out with one layer of full thickness interrupted sutures of 9-0 monofilament nylon. Nine to twelve sutures in each anastomosis insures a sperm-tight closure. After the anastomosis is completed the 3-0 monofilament nylon suture is removed. Leakage from the puncture site has not proved to be a problem. The procedure is carried out through a short single midline scrotal incision and drains are only occasionally used.

### Results

Most authors agree that there are a number of factors which influence the outcome of a vasovasostomy outside of technical failure. The length of time from the original vasectomy appears to be a factor, although we have had one patient who successfully fathered a child following a reversal done thirty years after the original vasectomy. The presence of a sperm granuloma at the site of the original vasectomy appears to improve the prognosis.<sup>7</sup> The presence or absence of sperm in a smear taken from the testicular end of the vas during preparation of the ends for anastomosis would appear to affect the outcome, and we have found technical difficulty in re-anastomosis when the original vasectomy was done in the convoluted portion or when cautery was used during the procedure.

Fifty-six patients were operated upon by one or other of the authors during the past five years. Four patients were lost to follow-up, and of the fifty-two remaining patients who were followed, there was immediate appearance of sperm in 49 (94%). After six months however, there was a fall off in the success with forty-three patients showing a sperm count of more than 20 million per cubic millimeter (83%). To date, there have been 23 pregnancies (44%).

### Conclusion

It is the authors' feelings that these figures compare favorably with the more recently published figures in the literature and lend support to the use of the microscope in experienced hands for all vasovasostomies.

### References

1. Belker AM, Acland RD, Sexter MS et al: Microsurgical two-layer vasovasostomy: Laboratory use of vasectomized segments. *Fertil Steril* 29:48, 1978.
2. Schmidt SS: Anastomosis of the vas deferens, an experimental study. II. Successes and failures in experimental anastomosis. *J Urol* 81:203, 1959.
3. Schmidt SS: *Urological Clinic*, 5:3, 585, 1978.
4. Silber SJ: Microscopic technique for reversal of vasectomy. *SG & O* 143:630, 1976.
5. Silber SJ: Microscopic vasectomy reversal. *Fertil. Steril* 28:1191, 1977.
6. Silber SJ: *Microsurgery*. Williams and Wilkins, Baltimore.
7. Sibling SJ: *Urological Clinics*. 5:3, 573, 1978.





## Starch Blocker

Donald S. Robertson, M.D.

As an internist, gastroenterologist and a member of the Research Committee of the American Society of Bariatric Physicians, I feel that it is appropriate to circulate a warning at this time. Not only to the public, but also to physicians who may be involved or may become involved with the subject matter of this column.

The history of the treatment of obesity has a long list of diets, fads, shots and pills. Many of these are given indiscriminately without proper research data to back up whether they are effective. In the past, the public, desperate in their search to control obesity, has been willing to grasp at almost any modality. Physicians in general and especially most bariatricians feel that in the treatment of obesity, the use of a special product, a diet, a gimmick, a fad or a drug, which has not had adequate research to back up the claims made for it, or which has not been in use long enough to know what the long term effects can or could be, is taking a dangerous course as far as medical and legal responsibility for the patient's care is concerned.

Many times in the past, especially in the field of obesity, true professionalism and scientific knowledge have taken a back seat to what could be interpreted as personal gain. This is done at the patients expense, as with the liquid protein diet, some patients ended up paying with their lives.

Recently, a new product has appeared on the market, which according to the manufacturer, and to a few doctors that have been involved in its use since November 1980, is presumably the first real breakthrough in the treatment of the obese patient. This new product is called Amylex. It is not a drug, but a processed food made from a certain type of bean. It is also called NBE (Northern Bean Extract) or The Starch Blocker. Its only apparent action is to presumably block the absorption of ingested starch from

the gastrointestinal tract into the blood stream by forming an insoluble complex with alpha-amylase, the pancreatic enzyme that breaks down starch to maltose, which as maltase then converts to glucose. The starch theoretically then passes out of the GI tract undigested, much the same way as fiber does, along with the supposedly insoluble complex, Amylex + amylase.

There are claims that a patient may ingest a thousand calories of starch, such as bread, potatoes, pasta and cereals just to name a few, over and above the allotted seven or eight hundred calorie diet and continue to lose weight very rapidly. Obviously, the concept is exciting and should or could have great potential as an adjunct to the treatment of the obese patient, and especially for those who are "addicted" to the intake of starch. This product is said to have nothing to do with blocking absorption of protein, fat, sugar or alcohol, but only, apparently, with the absorption of starch.

As a bariatric physician and especially as a gastroenterologist, I feel the time is ripe to ask a few pertinent questions. 1. Is there any authentic published data on a large number of patients to substantiate the claim that five out of seven patients are successfully losing weight while using this product? The answer, unfortunately, is no. There is no published data in peer reviewed medical journals. 2. Is there any information on the long-term side effects of blocking the enzyme amylase? Since amylase is the main starch hydrolyzing enzyme, will the long-term use of the starch-amylase blocking compound have any effect on the production of amylase in the pancreas, and will it affect other enzyme levels? This question has not been researched or answered. 3. If this new compound-Amylex is discharged in the feces, what do we know about what else gets pulled out with this insoluble complex such as sodium, potassium, other minerals and trace elements? There is no published data even hinting at these possible complications. The point I am making is the affects of the use of this product over a long period of time are totally unknown, and careful monitoring by a knowledgeable physician is mandatory. These are only some of the questions that remain unanswered in the creation of an artificial malabsorption syndrome, and there obviously are many more.

This whole situation recalls, to a certain extent, the nightmare of liquid protein and the book describing it, which was published prematurely and irresponsibly according to experts in the field. It was published before enough research data had been accumulated for doctors to know exactly how to handle this product. Had this not been published prematurely, the liquid protein diet, used with

discretion by knowledgeable physicians with expertise in this area, could still be a valuable tool. The fact remains that there are now several hundred suits in process across the country involving the use of liquid protein, brought by patients who had more than unhappy experiences. Let's not let this happen again.

You will be hearing more about various blocking agents in the future. For instance, a calcium blocker is being researched, in a controlled medical school setting as one way of treating hypertension. At the University of California, another starch blocker is being studied. Its source is wheat and the work is done by Dr. George Bray, Professor of Medicine at UCLA, and internationally recognized for his research on obesity. Again, the research conditions are ideal. Studies are now under way and the results should be available by the end of this year. There is also an x-ray contrast medium named Perflouroctyl Bromide. This temporarily prevents absorption of all nutrients. Research is currently being carried out in this product, but will probably not be available for five or six years. It is the unqualified opinion of myself, as a member of the Research Committee of the Bariatric Society, and also of Peter Lindner, M.D., Chairman of the Board of the American Society of Bariatric Physicians, that Amylex should be used only under continuous, strictly controlled, clinical investigative conditions, and under direct physician supervision. Only in this way can the data be collected, analyzed and presented to qualified physicians before indiscriminate widespread use be allowed.

In issuing this warning I am not alone. I have talked to nutritionists and bariatricians on the West coast and East coast, all of whom are opposed to the release of such a product for widespread use without controlled conditions and the necessary research. I feel this situation calls for an unemotional, research-oriented professional and scientific approach, and that this warning should be public even though the manufacturer has decided to release this product through physicians only. The sensational claims have obvious potential and could very well get out of control if some other manufacturer, less scrupulous, might decide to produce the same product.

The Bariatric Society has put a great effort into making the treatment of the obese patient as scientific and as professional as possible. It would be an irresponsible giant-step backward to give a blanket endorsement to a product, no matter the claims, that has not been substantiated by scientific research.

Continued on page 853

From: 7331 East Osborn Drive, Scottsdale, Arizona 85251.

For your patients' benefit...

---

**BEFORE YOU WRITE  
OUR NEXT ANTIARTHRITIC  
PRESCRIPTION,  
PLEASE READ  
THIS MESSAGE**





Boots announces a pharmaceutical first.

# TWO WAYS YOU WILL SAVE MONEY WITH

Introducing

## RUFEN<sup>®</sup> (ibuprofen)

### **\$1.50 REBATE DIRECT TO YOUR PATIENTS ON EVERY PRESCRIPTION OF 100. REFILLS INCLUDED.**

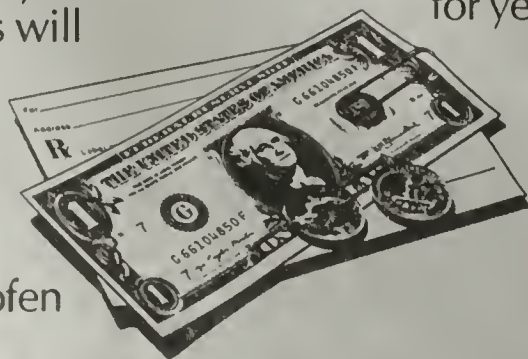
One dollar fifty cents returned for every Rebate Coupon your patients mail in.

Every bottle of 100 tablets of RUFEN 400 mg has a Rebate Coupon attached, with full instructions for redemption.

It has already been determined, through public opinion research, that most arthritic patients will appreciate direct rebate savings as much as they appreciate the results of ibuprofen therapy.

### **AND RUFEN IS PRICED LOWER TO BEGIN WITH.**

Boots has already priced RUFEN lower to the wholesaler and the retailer. And if these savings are passed along, as they should be, your patient will receive the benefit of this lower price. Add these savings to the rebate, and your patients receive substantial relief from the costs of a medication many of them may take for years.



### **RUFEN IS NOT A GENERIC. BOOTS IBUPROFEN IS THE ORIGINAL.**

And if you wish, RUFEN may be substituted for Motrin<sup>®</sup>, because it is bio equivalent.\*

Original research by The Boots Company Ltd., of Nottingham, England, developed ibuprofen.

And though we introduced it ourselves elsewhere around the world, licensed ibuprofen for sale in the United States.

# ARTHRITIC PATIENTS BUPROFEN THERAPY.

You first came to know  
it as Motrin (ibuprofen),  
manufactured by Upjohn.  
Now, as we have estab-  
lished facilities in America,  
we hope you'll come to  
know Boots brand name  
or ibuprofen as RUFEN.

## BIOEQUIVALENCY? OF COURSE.\*

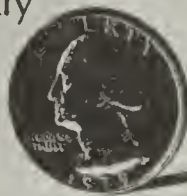
That's why you may substi-  
tute RUFEN for Motrin.



Data on file.

## ALSO: A BOOTS CONTRIBUTION TO ARTHRITIS RESEARCH WITH EVERY REBATE.

A 25¢ contribution per  
rebate is built directly  
into the RUFEN  
program. And with  
thousands of pre-  
scriptions anticip-  
ated for RUFEN 400 mg  
each year, the annual po-  
tential for arthritis research is  
enormous.



**Rufen<sup>®</sup>**  
(ibuprofen)



# WHEN YOU'RE WRITING YOUR NEXT PRESCRIPTION FOR IBUPROFEN, PLEASE REMEMBER:

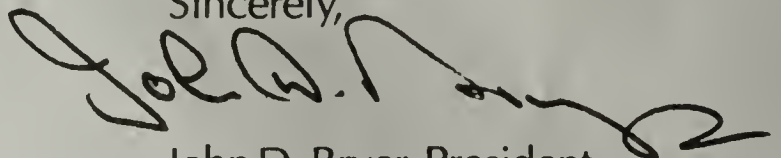
- RUFEN®** OFFERS A \$1.50 REBATE DIRECT TO YOUR PATIENTS ON EVERY BOTTLE OF 100 TABLETS OF RUFEN 400 MG.
- RUFEN** COSTS YOUR PATIENTS LESS TO BEGIN WITH.
- RUFEN** CONTRIBUTES 25¢ PER REBATE TO ARTHRITIS RESEARCH.
- RUFEN** IS NOT A GENERIC... BOOTS IBUPROFEN IS THE ORIGINAL.
- RUFEN** (IBUPROFEN) IS BIOEQUIVALENT TO MOTRIN® (IBUPROFEN).\*

I hope we've given you several good reasons to remember RUFEN the next time you prescribe ibuprofen.

If we haven't, or if you'd like to know more about Boots Pharmaceuticals or this program, please don't hesitate to drop me a line. Or call us directly at our toll-free number: (800) 551-8119. Louisiana residents, call (800) 282-8671.

To ensure that your patients receive the benefits of the Rufen program, be sure to specify "D.A.W.," "No Sub," or "Medically Necessary," as required by the laws of your state.

Sincerely,



John D. Bryer, President  
Boots Pharmaceuticals, Inc.



**Boots Pharmaceuticals, Inc.**  
6540 LINE AVENUE, SHREVEPORT, LOUISIANA 71106

*Pioneers in medicine for the family*

## **RUFEN®** (ibuprofen/Boots)

(For full prescribing information, see package brochure)

### **RUFEN® Tablets**

(ibuprofen)

**INDICATIONS AND USAGE:** Treatment of signs and symptoms of rheumatoid arthritis and osteoarthritis during acute flares and in the long-term management of these diseases. Safety and effectiveness have been established for Functional Class IV rheumatoid arthritis.

Relief of mild to moderate pain.

**CONTRAINDICATIONS:** Patients hypersensitive to ibuprofen, or with the syndrome of nasal polyps, ang edema and bronchospastic reactivity to aspirin or other nonsteroidal anti-inflammatory drugs (see **WARNING**).

**WARNINGS:** Anaphylactoid reactions have occurred in patients hypersensitive to aspirin (see **CONTRAINDICATIONS**). Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Peptic ulceration, perforation, or gastrointestinal bleeding can end fatal however, an association has not been established. Rufen should be given under close supervision to patients with a history of upper gastrointestinal tract disease and only after consulting the **ADVERSE REACTION**.

In patients with active peptic ulcer and active rheumatoid arthritis, nonulcerogenic drugs, such as gastric should be attempted. If Rufen must be given, the patient should be under close supervision for signs of ulcer perforation or gastrointestinal bleeding.

**PRECAUTIONS:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If developed, discontinue Rufen and administer an ophthalmologic examination.

Fluid retention and edema have been associated with Rufen; caution should be used in patients with a history of cardiac decompensation.

Rufen can inhibit platelet aggregation and prolong bleeding time. Use with caution in patients with intrinsic coagulation defects and those taking anticoagulants.

Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain or edema.

To avoid exacerbation of disease or adrenal insufficiency, patients on prolonged corticosteroid therapy this therapy should be tapered slowly when adding Rufen.

**DRUG INTERACTION:** Coumarin-type anticoagulants. The physician should be cautious when administering Rufen to patients on anticoagulants.

**Aspirin.** Concomitant use may decrease Rufen blood levels.

**PREGNANCY AND NURSING MOTHERS:** Rufen should not be taken during pregnancy nor by nursing mothers.

### **ADVERSE REACTIONS**

**Incidence greater than 1%**

**Gastrointestinal:** The most frequent adverse reaction is gastrointestinal (4% to 16%). Includes nausea\*, epigastric pain\*, heartburn\*, diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of GI tract (bloating or flatulence). **Central Nervous System:** dizziness\*, headache, nervousness. **Dermatologic:** rash\* (including maculopapular type), pruritus. **Special Senses:** tinnitus. **Metabolic:** decreased appetite, edema, fluid retention. Fluid retention generally responds promptly to discontinuation (see **PRECAUTIONS**).

\*Incidence 3% to 9%.

**Incidence less than 1 in 100**

**Gastrointestinal:** gastric or duodenal ulcer with bleeding and/or perforation, hemorrhage, melena. **Central Nervous System:** depression, insomnia. **Dermatologic:** vesiculobullous eruptions, urticaria, erythema multiforme. **Special Senses:** amblyopia (see **PRECAUTION**). **Hematologic:** leukopenia, decreased hemoglobin and hematocrit. **Cardiovascular:** congestive heart failure in patients with marginal cardiac function, elevated blood pressure.

**Causal relationship unknown**

**Gastrointestinal:** Hepatitis, jaundice, abnormal liver function. **Central Nervous System:** paresthesias, hallucinations, dream abnormalities. **Dermatologic:** alopecia, Stevens-Johnson syndrome. **Special Senses:** Conjunctivitis, diplopia, optic neuritis. **Hematologic:** hemolytic anemia, thrombocytopenia, granulocytopenia, bleeding episodes. **Allergic:** fever, serum sickness, lupus erythematosus syndrome. **Endocrine:** gynecomastia, hypoglycemia. **Cardiovascular:** arrhythmias (Sinus tachycardia, bradycardia, and palpitation). **Renal:** decreased creatinine clearance, polyuria, azotemia.

**OVERDOSAGE:** Acute overdosage, the stomach should be emptied. Rufen is acidic and excreted in the urine; alkaline diuresis may benefit.

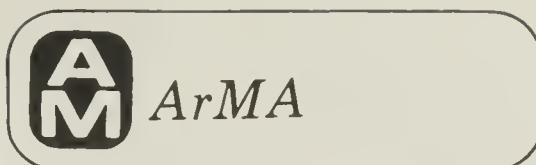
**DOSAGE AND ADMINISTRATION:** Rheumatoid arthritis and osteoarthritis, including flareups of chronic disease: Suggested dosage 400 mg t.i.d. or q.i.d.

Mild to moderate pain: 400 mg every 4 to 6 hours if necessary for relief of pain. Do not exceed 2,400 mg per day.

**CAUTION:** Federal law prohibits dispensing without prescription.

Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

Unfortunately, the treatment of the obese patient is often in the hands of pseudo-professionals without credentials or with credentials that are only approved but not accredited and also, often in the hands of the public themselves. So the fear I express herein, is that this product could get out of control, fall into the hands of non-professionals to be used on a large scale without adequate research. The manufacturer informed me, that over one hundred doctors are using this product at the present time. It well might help with many patients' problems, but it might be nothing but trouble and harm. When a patient asks if there are any side effects, or is it dangerous, how can one with integrity say "no." The only truthful answer you can give is, "We do not know at the present time."



## Motivation, Awards and Recognition

No matter how capable the people, when morale sags so does performance. Good pay is only a part of the story. The most vital thing is the knowledge that one's peers care about him or her. Thus, the development of two events at the College of Medicine have naturally evolved. These are the Annual Founder's Day discourse by a faculty selected member and the Annual Faculty Teaching Awards Day honoring student selected departments and faculty for outstanding teaching.

November 17, 1967 marked the official dedication of the College of Medicine Basic Sciences Building. To commemorate this founding day each fall, a committee of the faculty select from a list of nominated full-time faculty members a person viewed as exemplifying the best of scholarly activity in the College. Henry I. Yamamura, Ph.D., Professor of Pharmacology spoke on "Neurotransmitter and Receptor Alterations in Neuropsychiatric Disorders" at the Founder's Day Science Forum in 1979. The past year David J. Sahn, M.D., Professor of Pediatrics delivered a discourse on "Advances in Echocardiography for the Diagnosis of Heart Disease Before and After Birth." These presentations were superbly done and brought to the college community of faculty and students information widely known by scholars internationally, but often less apparent locally. The College looks forward to this year's presentation by Mark R. Haussler, Ph.D. whose specialty is Vitamin D and Vitamin A and their receptors. The title of his talk will be "Vitamin D and A: From Molecules to Medicine."

Perhaps some recall Golden Apple and other outstanding teacher awards during their education. Others may remember a teacher who wasn't so honored, but known to be excellent. Often the academic system overlooks some very deserving teachers. The spring of 1981 marked an effort by the College to correct such oversights. On April 21, 1981, awards for teaching excellence were made at our First Annual Faculty Teaching Awards Day following a keynote stage-setting address on "Clinical Problem Solving: The Fun and

### President

Clyde W. Kurtz, M.D.

### President-Elect

John E. Oakley, M.D.

### Vice President

Neopito L. Robles, M.D.

### Secretary

Earl J. Baker, M.D.

### Treasurer

Clifford D. DeBenedetti, M.D.

### Past President

John T. Clymer, M.D.

### Executive Director

Bruce E. Robinson

### Publishing Committee

Marshall B. Block, M.D., Chairman

Burnell R. Brown, M.D.

George E. Burdick, M.D.

Kenneth B. Desser, M.D.

Benjamin K. Harris, M.D.

Jonathan M. Levy, M.D.

William B. McGrath, M.D.

Jay W. Smith, M.D.

Sidney C. Werner, M.D.



Essence of Medical Learning and Teaching" by Vincent A. Fulginiti, M.D., Professor and Head of the Department of Pediatrics.

A system designed by the College Curriculum Committee, selected through student surveys the outstanding basic and clinical science courses, the outstanding basic and clinical science and housestaff teachers and a roll of Dean's List of outstanding teachers from these categories of faculty. The sophomore class selected the Department of Pharmacology Course directed by John D. Palmer, M.D., Ph.D., Associate Professor as the best basic science course. They identified William D. Barber, DVM, Ph.D., Lecturer in Anatomy, as the Basic Science Educator of the year and placed Thomas F. Burks, Ph.D., Professor and Head of the Department of Pharmacology, Norman E. Koelling, M. Sc., Lecturer in the Department of Anatomy, John D. Palmer, M.D., Ph.D., Associate Professor of Pharmacology and C. George Ray, M.D., Professor of Pathology on the Dean's List.

The Department of Internal Medicine was chosen for the best clinical science course by the senior class. This course in the junior year is guided by Robert A. Barbee, M.D., Professor of Internal Medicine. Douglas Lindsey, M.D., Dr.P.H., Associate Professor of Surgery, was identified as the Clinical Science Educator of the year. For excellence in teaching in the clinical sciences, Sergio A. Bustamante, M.D., Assistant Professor of Pediatrics, Gordon A. Ewy, M.D., Professor of Internal Medicine, W. David Hager, M.D., Associate Professor of Internal Medicine, Peter J. Lynch, M.D., Professor of Internal Medicine, Michael J. Pitt, M.D., Associate Professor of Radiology, Mary E. Rimsza, M.D., Adjunct Associate Professor of Pediatrics, Jay W. Smith, M.D., Professor of Internal Medicine and Marlys H. Witte, M.D., Professor of Surgery were identified for the Dean's List.

The House Officer Educator of the year was Michael R. Swenson, M.D. from the Department of Neurology. Honorable Mention was given to R. Scott Gorman, M.D. of Internal Medicine and John F. Rothrock, M.D. of Neurology.

Recognizing excellence is one of the really satisfying experiences in life. It is with pride that I bring to the attention of Arizona's medical community these outstanding individuals. Arizona has a right to be proud of its College of Medicine.

Louis J. Kettel, M.D.  
Dean

There are fads and fashions and fancies in everything from hula hoops to designer jeans. Among medical subjects, especially psychiatric, cycles of popularization are apparent to everyone except the immature enthusiast.

What harm is done when a physician gets a bit carried away by fulsome and uncritical "news" about hypnosis or acupuncture or some exotic diet or a best-selling book extolling selfishness as a moral imperative?

The proximate harm, of course, is to the doctor's own reputation.

Unabashed are the few unscrupulous physicians who jump on any bandwagon to cash in. Purveyors of snake oil, they seldom belong to professional societies or participate. On cutting or critical appraisal (peer review) they do not bleed because they are psychopaths, motivated only by greed.

Then there is the posturing paranoiac, the messiah with his exclusive claim to wisdom and benevolence. He seeks followers and disciples instead of patients, and he has no friends.

Others who beat the drums for each new cure-all will sometimes stumble and fall. Sheepishly pleading gullibility as an excuse, they identify themselves as callow lads who haven't graduated from short trousers to long.

Insufficiency of skepticism hurts not just the purported expert but moreso the clientele or public whom he is supposed to protect. The result is a potentially disastrous invitation to iatrogenic disabilities.

The classical expression was "Delenda est Carthago." If the proposition, "Carthage is destroyed," were to be repeated often enough, it was almost bound to prove true. Our modern (but not new) version is called the self-fulfilling prophecy.

An example is the spate of articles on stress. A knot in one's shoestring or burned toast is hardly what the neurophysiologists have in mind. For lack of any clear definition, the term has been reduced to absurdity.

Two parenthetical points should be mentioned. Whenever the responsible stressor is known and consciously acknowledged (unfaithful spouse, job insecurity) there is little or lessened likelihood of psychosomatic damage: One has a choice of fight or flight; one has something to blame.

Secondly and most emphatically, there is a nearly mathematical correlation between stress and incompetency! Take comparably difficult tests in general medicine and in psychiatry. The former would be a hundred times more nerve-

wracking to me than would the latter. A professional boxer might find a polo game pretty stressful. An aggressive surgeon who repeatedly undertakes operation for which he is not qualified, will pay psychosomatic price. Unmentioned in the literature is this glaring truth — that *stress disorders are best prevented by journeyman competency.*

A more recently popularized concern is addressed in a sympathetic article JAMA (1981; 246: 781): "The Psychological Problems of Vietnam Veterans." The subject is taken up by movies and television and in magazines in their histrionic and one-sided fashion. The theme finally conveys that gross neurotic reactions are to be expected (self-fulfilling prophecy) and are therefore almost normal. Paradoxically the individual with strong and healthy coping mechanisms will be portrayed as somehow brutal and insensitive.

A caveat will be appreciated by anyone experienced in disability evaluation. What appear to be the most pitiful cases of "posttraumatic stress disorder" often involve individuals who saw no combat at all or who had not even been overseas (The men who were there refer to it as Vietnam, not "Nam" as in the movies.)

Soft people keep hearing about "job related stress" and its terrible effects on their minds and bodies. So we are witnessing an epidemic of crybaby conditions. No, we are not just witnessing; we are coaching and coaxing the strivings for dependency, the wishful escapism to some stress free world of the child's imagination. (To live in a cottage by the side of the road and be a friend to man).

The inadequate and the hysterical and the sociopathic gladly welcome this scapegoat which we have paraded in front of them. "Job related stress" or "posttraumatic stress disorder" can be a very convenient excuse (a license?) for failures and misdeeds of the past and the present and the future. (A local rapist told his victims that he had been exposed to "agent orange").

Exculpation, however, does not entirely relieve or remove the consequences of inadequate or hysterical or aggressive behavior. Whenever harm can be blamed on the environment whenever the individual is encouraged to play the victim-of-circumstances role then almost automatically there will be demands for compensation.

In our time half-baked notions of the causes and cures of human ills may be proliferating. This is partly due to the intensity and acceleration of medical transport and partly the result of

Journalistic dramatization and oversimplifications.

In every field (mechanics, law, medicine, accounting) we finally have to depend on experts and trust them. (This distorted dependency is a main source of ambivalence.) One cardinal trait which we have a right to expect of any expert is skepticism.

A physician can preserve this hallmark of professionalism in only one safe way: by attending meetings of hospital staffs and medical societies and most of all by fraternizing with his colleagues.

William B. McGrath, M.D.



**Arizona  
Medicine**



**ArMA Reports**

**The minutes appearing in this section have been condensed. A complete copy of the minutes of any meeting will be mailed to any member requesting them.**

#### **AD HOC INDIGENT HEALTH COMMITTEE**

This committee met on August 29, 1981. Comments about House Bill 2484 from county governmental agencies, specialty societies, other medical groups and organizations were received. After discussion it was determined to take no formal position on the Bill. But, it was moved and carried to send a letter to the legislative leaders expressing the Associations' concerns and suggestions, as well as offering assistance. Upon approval of the Board of Directors this motion will be carried out. (*A copy of the proposed letter to the legislature can be obtained from the ArMA office*).

#### **EXECUTIVE COMMITTEE**

This committee met on September 11, 1981. The new Associate Executive Director, Kevin Walker was introduced to the Committee.

Dr. Sarn, Director of the Department of Health Services reported on activities of the Department, indigent health care, current concerns in the area of cost containment and the success of the Rural Health Conference.

The proposals of two management consultants, Jim Soudriette and ASAE Association Evaluation Program and Financial Systems Evaluation Program, were reviewed. It was moved and carried to obtain two or three other proposals before reaching a decision.

A recent action now makes it possible for AMA to directly solicit for members and they will begin a program in May 1982. In the interim ArMA, Maricopa and Pima societies are developing a membership solicitation program for all three groups.

ArMA presented a proposal to the Flinn Foundation to develop a TV series for distribution. It will be heard by the Foundation board in October.

It was requested the committee consider reforming the Ad Hoc Cost Containment Committee; reports on the subject from the AMA Council on Medical Service were reviewed.

**Editor  
Marshall B. Block, M.D.**

**Associate Editors  
Kenneth Desser, M.D.  
C. Herbert Fredell, M.D.  
Warren Gorman, M.D.**

**Editorial Board  
Thomas E. Blittker, M.D.  
John R. Green, M.D.  
John W. Kennedy, M.D.  
William B. McGrath, M.D.  
Arthur R. Nelson, M.D.  
Charles Nugent, M.D.  
Eric Prosnitz, M.D.  
Sydney Salmon, M.D.  
Lawrence Stern, M.D.**

**Managing Editor  
Bruce E. Robinson**

**Editorial Assistant  
Joan M. Alexander**



## ARTICLES OF INCORPORATION AND BYLAWS COMMITTEE

This committee met September 12, 1981. The purpose of the meeting was to discuss the goals and objectives as stated in a letter from President, Dr. Kurtz.

The Chairman, Dr. Charles Henderson, advised the committee that he had reviewed the Association's Articles and Bylaws and compared them with other States. He felt they could be edited and revised.

The committee agreed to begin the review and rewriting at its next meeting. In the meantime the chairman would prepare and circulate a list of specific items to be considered.

## MEDICAL ECONOMICS COMMITTEE

This committee met on September 24, 1981. In his Chairman's Report, Dr. Mobley discussed the letter from Dr. Scott Tyler in which he requested the Association's support in developing a membership directory of services and equipment. After discussion it was decided that ArMA should not publish such a directory, but it might be done through private sources.

Dr. Kurtz briefed the committee on the data submitted at the public hearings on the 1981-82 medical fee schedules and reported on the ICA fee schedule that was adopted on June 23, 1981.

It was moved and carried to support Dr. Colachis' request that physical medicine be under the schedule of medicine at 4.65 rather than have it listed at 4.20. This is to avoid confusion between physical medicine and physical therapy.

In a letter, Robert C. Osborne, M.D. questioned the representation of anesthesiologists and their fees before the ICA. Dr. Mobley indicated he would answer Dr. Osborne's letter stating the committee had not been given a copy of Dr. Cain's memo even though several requests for information were sent to the specialty societies. The letter will also state that the fees are approaching UCR for all medical fields and that the committee encourages input from the specialties.

The Industrial Commission wrote encouraging regular attendance by all physicians at the Tucson Workmen's Compensation Hearings. It was decided that ArMA staff would help arrange a meeting between the Chief Administrative Law Judge Robert Steckner and Tucson Orthopedic groups to discuss the problem.

Plans for developing the 1982 presentation to the ICA were discussed.

It was decided Dr. Daley would contact the Orthopedics, and also obtain documentation on the standards of patient care. Dr. Mobley stressed anecdotal examples would be helpful in convincing the ICA that individuals may be receiving lower levels of care because of their status as industrial patients. Letters would be sent to the specialty societies for their recommendations.

It was moved and carried to advise Charles Fisher that the Medical Economics Committee would not take a position on their professional liability program, the CNA Medical Professional Liability Program. This is because the Association officially supports MICA and supporting another program would be contrary to policy.

The Arizona Self-Insurers Association is interested in working with ArMA on a state-wide statistical loss analysis. This will be discussed further with them.

Peer Review for ICA was discussed. It was decided to review specific industrial cases for the ICA, but not to begin an ongoing review of all cases.

It was moved and carried to hold a commercial real estate seminar in early December.

## FINANCE COMMITTEE

This committee met September 26, 1981. The 1982 Committee Budgets were reviewed. It was moved and carried because of Resolution 2-81 the Benevolent and Loan Fund Committee be removed from the budget structure. It will appear as a separate entity in future financial statements.

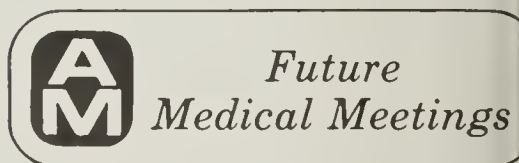
The following committee budgets will be recommended to the Board of Directors: Articles of Incorporation and Bylaws, \$500; Board of Directors, \$6,000; Executive (Meeting Expense - \$2,500; Contingency - \$2,000) \$4,500, (guidelines will be developed for the contingency); Finance, \$1,000; Grievance, \$1,000; History and Obituaries 0; Maternal and Child Health Care, \$1,500; Health Manpower, \$1,200; Legislative, \$25,000; Medical Education, \$4,000; Medical Economics, \$1,500; Occupational Health, \$500; Professional, \$4,000; Public Relations, \$13,400; Governmental Services, \$2,000; Scientific Assembly, \$1,000; Housestaff, \$1,000; Ad Hoc, \$1,000; ArMA Auxiliary, \$1,000; Physician's Health, \$3,500.

The AMA Delegation voluntarily worked out a reimbursement system for 1982, which will keep them well within imposed limits.

After reviewing a report on purchasing our own telephone system it was decided to wait a year or two before reconsidering such a proposal.

It was moved and carried to recommend to the Board of Directors that the principle funds receive quarterly from Mutual Insurance Company of Arizona be kept intact invested and not spent for the Association's general operation. The income generated from the investment would revert to the general operating fund.

Background was reviewed on the grant to the ArMA Foundation from Marsh McLennan. This grant totals \$95,000 and its use is limited to research and programs to prevent malpractice. These funds have been borrowed by the Association instead of from the bar and are currently being carried as liability. It was also noted that the assessment which funded the activities of the Malpractice Insurance Crisis Committee has been depleted. It was moved and carried to recommend to the Board of Directors of the Arizona Medical Association Foundation the authorization be given to transfer the \$95,000 to the Association for funding the future activities of the Malpractice Insurance Crisis Committee.



The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott

ie accredited institutions and organizations above  
 oduce a variety of continuing medical education  
 ograms. Each accredited institution and  
 ganization is responsible for designating which of  
 ese programs meet ArMA's requirements for  
 tcategory 1 credit. Physicians who participate in  
 ograms which are designated Category 1 by  
 credited institutions will receive Category 1 credit  
 ward the ArMA Certificate in CME and the AMA's  
 ystician's Recognition Award.

## NOVEMBER

### Dean's Clinical Rounds

November 16, 1981. U of A Health Sciences  
 Center, Tucson. Sponsor: U of A College of  
 Medicine. Contact: Office of Continuing  
 Medical Education & Outreach, U of A Health  
 Sciences Center, Tucson, AZ 85724.  
 Approved for Category 1 credit.

### 9th Annual Convention of the Medical Society of the United States and Mexico

November 18-21, 1981. Tucson, Arizona.  
 Sponsor: Medical Society of the United  
 States and Mexico. Contact: Executive  
 Secretary, 3161 North Pantano Road,  
 Tucson, AZ 85715.

### The Legal Hurt of Chronic Pain II

November 19-20, 1981. The Registry Resort,  
 Scottsdale. Sponsor: St. Luke's Hospital and  
 Medical Center. Contact: Christine  
 Campbell, Meeting Planner, St. Luke's  
 Hospital and Medical Center, 525 North 18th  
 Street, Phoenix, AZ 85006. Approved for  
 Category 1 credit.

### Male Sexuality Course for Professionals

November 21, 1981. ASU Alhambra Center,  
 Phoenix. Sponsor: Planned Parenthood.  
 Contact: Carolyn Maxon, Planned  
 Parenthood, Continuing Education Courses,  
 301 S. Seventh Ave., Phoenix, AZ 85007.  
 Category 1 credit has been applied for toward  
 the ArMA CME certificate.

### Soft Tissue Tumors

November 21-23, 1981. McCormick Ranch  
 Inn, Scottsdale, Arizona. Sponsor: Arizona  
 Society of Pathologists. Contact: Grant A.  
 Bertel, M.D., Program Chairman, Goods  
 Samaritan Hospital, 1033 E. McDowell Road,  
 Phoenix, AZ 85006.

### The Adolescent Female

November 28-29, 1981. Doubletree Inn,  
 Scottsdale. Sponsor: U of A College of  
 Medicine. Contact: Attn: Faith Carlisi-Smith,  
 Office of Continuing Medical Education &  
 Outreach, U of A Health Sciences Center,  
 Tucson, AZ 85724. Approved for Category 1  
 credit.

## DECEMBER

### Therapeutics and Pharmacology

December 5, 1981. Arizona Health Sciences  
 Center. Sponsor: U of A College of Medicine.  
 Contact: Office of Continuing Medical  
 Education and Outreach, U of A Health  
 Sciences Center, Tucson, Arizona 85724.  
 Approved for Category 1 credit.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation

December 9-11, 1981. Phoenix, Arizona.  
 Sponsor: The Eye Foundation. Contact: The  
 Eye Foundation, 421 N. 18th Street., Ste. 105,  
 Phoenix, AZ 85006.

### New Horizons in the Management of the Insulin-Dependent Diabetic

December 10, 1981. Arizona Medical Assn.  
 Building, Phoenix. Sponsor: ArMA, Amer  
 Diabetic Assn., Arizona Affiliate. Contact:  
 Arizona Medical Association, 810 West  
 Bethany Home Road, Phoenix, AZ 85013.  
 Approved for 3½ hours of Category 1 credit.

### Surgical Oncology

December 11-12, 1981. Arizona Health  
 Sciences Center. Sponsor: U of A College of  
 Medicine, and Am. College of Surgeons.  
 Contact: Office of Continuing Medical  
 Education and Outreach, U of A Health  
 Sciences Center, Tucson, Arizona 85721.

### Workshops on Urologic-Radiologic Diagnosis

December 11, 1981. Camelback Inn,  
 Scottsdale. Sponsor: Maricopa County  
 General Hospital. Contact: Alex Newman,  
 M.D., Program Director, Dept. of Radiology,  
 MCGH, 2601 E. Roosevelt St., Phoenix, AZ  
 85008. Approved for 8 hours of Category 1  
 credit.

### Urologic-Radiologic Diagnosis

December 12 & 13, 1981. Camelback Inn,  
 Scottsdale. Sponsor: Maricopa County  
 General Hospital. Contact: Alex Newman,  
 M.D., Program Director, Dept. of Radiology,  
 MCGH, 2601 E. Roosevelt, St., Phoenix, AZ  
 85008. Approved for 14 hours of Category 1  
 credit.

### Advanced Cardiac Life Support Provider & Recertification

December 15-17, 1981. Arizona Medical  
 Assoc. Offices, Phoenix. Sponsor: ACEP, Az  
 Chapter Am Heart Assoc., & ArMA. Contact:  
 Beverly Richter, ACEP, 810 W. Bethany  
 Home Rd., Phoenix, AZ 85013.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation.

December 16-18, 1981. Phoenix, Arizona.  
 Sponsor: The Eye Foundation. Contact: The  
 Eye Foundation, 421 N. 18th Street, Ste 105,  
 Phoenix, Arizona 85006.

## 1982

## JANUARY

### "Gastroenterology" Clinical Seminar Series

January 9, 1982. Grand Royale Hotel,  
 Phoenix. Sponsor: U of A College of  
 Medicine. Contact: Office of Continuing  
 Medical Education & Outreach, U of A Health  
 Sciences Center, Tucson, AZ 85724.  
 Approved for hour per hour Category 1  
 credit.

### 3rd Conference on Human Tumor Cloning

January 10-12, 1982. U of A Cancer Center,  
 Tucson. Sponsor: U of A College of Medicine.  
 Contact: Office of Continuing Medical  
 Education & Outreach, U of A Health  
 Sciences Center, Tucson, AZ 85724.  
 Approved for hour per hour Category 1  
 Credit.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation.

January 13-15, 1982. Phoenix, Arizona.  
 Sponsor: The Eye Foundation. Contact:  
 Ronald W. Barnet, M.D., The Eye Foundation,  
 421 N. 18th St., Ste 105, Phoenix, AZ 85006.

### Trauma Care 82

January 17-21, 1982. Alamos Resort,  
 Scottsdale. Sponsor: John C. Lincoln  
 Hospital & Lincoln Institute of Surgery and  
 Trauma. Contact: Paul K. Halverson,  
 Symposium Dir., Lincoln Institute of Surgery  
 & Trauma, 9211 North 2nd St., Phoenix, AZ  
 85020. Category 1 CME credit has been  
 applied for.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation.

January 27-29, 1982. Phoenix, Arizona.  
 Sponsor: The Eye Foundation. Contact:  
 Ronald W. Barnet, M.D., The Eye Foundation,  
 421 n. 18th Street, STe 105, Phoenix, AZ  
 85006.

### Advanced Trauma Life Support Course

January 29-29, 1982. John C. Lincoln  
 Hospital, Phoenix. Sponsor: U of A College of  
 Medicine. Contact: Office of Continuing  
 Medical Education and Outreach, U of A  
 Health Sciences Center, Tucson, AZ 85724.  
 Approved for hour per hour Category 1  
 credit.

## FEBRUARY

### 2nd Annual ACEP Symposium - Resuscitation "Pitfalls, Pearls and Promises"

February 3-5, 1982. La Posada Resort,  
 Scottsdale. Sponsor: Arizona Chapter,  
 ACEP. Contact: Beverly Richter, ACEP  
 Office, 810 W. Bethany Home Road, Phoenix,  
 AZ 85013.

### 8th Annual Sports Medicine Symposium

February 5-7, 1982. Holiday Inn Metrocenter,  
 Phoenix. Sponsors: Arizona Medical Assoc.,  
 Arizona Osteopathic Medical Assoc., Arizona  
 Interscholastic Assoc. Contact: Nikki Mertz,  
 ArMA, 810 West Bethany Home Rd., Phoenix,  
 AZ 85013. Approved for 7 hours of Category 1  
 credit.

### Clinical Seminar Series "Psychiatry"

February 6, 1982. U of A Health Sciences  
 Center, Tucson. Sponsor: U of A College of  
 Medicine. Contact: Office of Continuing  
 Medical Education & Outreach, U of A Health  
 Sciences Center, Tucson, AZ 85724.  
 Approved for hour per hour Category 1  
 credit.

### Southwestern Seminar on Neurological & Neuromuscular Disorders

February 11-13, 1982. Main Auditorium, Az  
 Health Sciences Center, Tucson, Az.  
 Sponsor: University of Arizona College of  
 Medicine. Contact: Office of Continuing  
 Medical Education & Outreach, U of A Health  
 Sciences Center, Tucson, AZ 85724.  
 Approved for Category 1 credit.

### International Cataract Surgery Symposium 1982

February 15-17, 1982. The Alamos Resort,  
 Scottsdale, Arizona. Sponsor: The Eye  
 Foundation. Contact: The Eye Foundation,  
 421 N. 18th St., Ste 105, Phoenix, Arizona  
 85006.



### **Pediatric Update 1982**

February 15-18, 1982. La Posada Resort Hotel, Scottsdale, Arizona. Sponsor: St. Joseph's Hospital and Medical Center, Dept. of Pediatrics. Contact: Ronald A. Christensen, M.D., Department of Pediatrics, St. Joseph's Hospital and Medical Center, 350 West Thomas Road, Phoenix, AZ 85013. Approved for 16 hours of Category 1 Credit.

### **Frontiers in Ophthalmology**

February 18-20, 1982. Arizona Biltmore, Phoenix. Sponsor: St. Luke's Hospital Medical Center. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital Medical Center, 525 N. 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### **Modulation & Mediation of Cancer By Vitamins**

February 23-26, 1982. U of A Cancer Center, Tucson. Sponsor: U of A College of Medicine. Contact: Mary Humphrey, Cancer Center Division U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per Category 1 credit.

### **Fifth Annual Mid-Winter Symposium in OB/GYN**

February 24-26, 1982. Scottsdale Hilton Hotel. Sponsor: Maricopa County General Hospital and Phoenix OB/GYN Society. Contact: The Secretary, Phoenix OB/GYN Society, 333 East Virginia, Ste 222, Phoenix, AZ 85004.

### **10th Annual Taos Lung Disease Symposium**

February 26-28, 1982. Taos, New Mexico. Sponsor: American Thoracic Society, New Mexico Chapter. Contact: New Mexico Chapter of the American Thoracic Society, 216 Truman NE, Albuquerque, New Mexico 87108.

## **MARCH**

### **Emergency Care Conference**

March 1-3, 1982. Westward Look Resort, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour category 1 credit.

### **Changes & Controversies in Pediatrics**

March 4-7, 1982. Marriott Hotel, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson AZ 85724. Approved for hour per hour Category 1 credit.

### **Advanced Trauma Life Support Course**

March 5-7, 1982. Westward Look Resort, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### **Instruction Course - Cataract Extraction & Intraocular Lens Implantation.**

March 10-12, 1982. Phoenix, Arizona. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 North 18th Street, Phoenix, AZ 85006.

### **Ninth Annual Barrow Neurological Symposium**

March 11-13, 1982. La Posada Inn Resort, Phoenix. Sponsor: St. Joseph's Hospital and Medical Center, Barrow Neurological Institute. Contact: Richard A. Thompson, M.D., 222 West Thomas Road, Phoenix, Arizona 85013.

### **Clinical Seminar Series "Endocrinology"**

March 13, 1982. Granda Royale, Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### **1st Symposium on Hematologic Malignancies**

March 14-21, 1982. Keystone Lodge, Colorado. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### **Instruction Course - Cataract Extraction & Intraocular Lens Implantation**

March 24-26, 1982. Phoenix, Arizona. Sponsor: The Eye Foundation. Contact: Ronald W. Barnet, M.D., 421 N. 18th Street, Ste 105, Phoenix, AZ 85006.

### **St. Luke's Chest Symposium**

March 29-31, 1982. Arizona Biltmore, Phoenix. Sponsor: St. Luke's Hospital. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital Medical Center, 525 North 18th Street, Phoenix, AZ 85006. Approved for hour per hour Category 1 credit.

## **MONTHLY OR WEEKLY**

### **Shrine Medics Meeting**

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom. Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

### **Office Psychiatry for the Primary Provider**

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

### **Counter Transference Group**

Weekly, Thurs. 8—10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

### **Monthly Meeting of Tucson Radiologists**

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

### **Pediatric Grand Rounds**

Tuesday 7:30-8:30 a.m. in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

### **Review of Forensic Pathology**

#### **Current Case, Special Topics**

Thursday, weekly, 11 a.m., 120 S. 6th Ave. Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.

## **ARIZONA HEART INSTITUTE**

4800 N. 22nd St., Phoenix, P.O. Box 10,000 Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

### **Clinical Conference Cardiovascular Medicine**

Third Tues., 5:15 p.m., second floor classroom

## **ARIZONA STATE HOSPITAL**

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

### **A.S.H. Psychiatric Grand Rounds**

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm. Contact: Dr. Conger & Staff

### **Clinical-Pathological Conference**

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

### **Medical Grand Rounds**

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.

## **BARROW NEUROLOGICAL INSTITUTE**

### **Medical Education**

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### **Neurology Teaching Conference**

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf. Room.

### **Neurosurgical Morbidity Conference**

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### **Neuro-ophthalmology Conference**

Mondays, 7:30 a.m. in 8th floor neurology conference room.

### **Spinal Injury Conference**

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conf. Rm.—a multidisciplinary review of admission by neurosurgeons, orthopedists, and rehabilitation specialists

### **Neuro-ophthalmology Conference.**

Weekly, 7:30 a.m., 8th floor conference Rm.

### **Neuropathology of Gross Specimens Conference**

Thursday, 7:30-8:30 a.m. in the Morgue.

### **Neurology-Neurosurgical**

Fridays, 8-9 a.m., First Floor Conference Rm.



The treatment of critically injured patients demands a repertoire of highly specialized skills and training. Are you, and the people you work with, up on the latest techniques?

Attend Trauma Care '82, January 17-21, and open your mind to this innovative and crucial dimension of emergency medicine. This national symposium is sponsored by John C. Lincoln Hospital and Lincoln Institute of Surgery & Trauma in Phoenix. The Lincoln trauma team approach is acclaimed one of the most innovative and progressive in the West.

Trauma Care '82 will provide an educational and enlightening forum for the exchange of ideas and methods on this dynamic aspect of emergency care. You'll learn about the most current trends in patient transport, team communication, neuro management in the I.C.U., and much more. There will be lectures, panel and small discussion groups and creative problem-solving sessions. The agenda is filled with noted national authorities in the field of trauma care, as well as an impressive roster of speakers from the staff of the John C. Lincoln Hospital Trauma Center.

In addition to all this, the American College of Surgeons is sponsoring a special Advanced Trauma Life Support Course, January 15-16, prior to the symposium (limited availability).

And what better setting could there be for this spectacular event than the great Southwest? Few places can boast its grandeur, or its warm winter climate. You'll stay at the luxurious new Alamos Resort in Scottsdale, a city that blends Old West charm with cosmopolitan chic. Spouses will be treated to a fun program of touring, shopping and sight-seeing. And you can top off your trip with a post-symposium jaunt to Mexico!

# There's a whole new world of trauma medicine. Are you ready to brave it?



Be a part of medical history in the making. Spend a week in the glorious Arizona desert while you're doing it! Reserve your place now for Trauma Care '82, one of the most important professional conferences of the year.

Call collect to Paul K. Halverson, Symposium Director at (602) 943-3641. Or write to the address below for all the details.



## TRAUMA CARE

Jan 82

John C. Lincoln Hospital  
and Trauma Center  
9211 North 2nd Street  
Phoenix, Arizona 85020



# INTERNATIONAL CATARACT SURGERY SYMPOSIUM 1982

The Alamos Resort

February 15-16-17, 1982

Scottsdale, Arizona

Ronald W. Barnet, M.D.  
Mr. D. Peter Choyce  
Jonathan Herschler, M.D.  
Charles D. Kelman, M.D.

**Faculty**  
Larry G. Leiske, M.D.  
Steven P. Shearing, M.D.  
John H. Sheets, M.D.  
William C. Simcoe, M.D.

Robert M. Sinskey, M.D.  
Harold A. Stein, M.D.  
Jerald L. Tennant, M.D.  
J. G. F. Worst, M.D.

This year, The Symposium offers a unique opportunity — IOL Instruction Courses taught by surgeons who have designed and developed their own lens implants.

The Symposium will also offer other practical, How-To Courses, including the fitting of aphakic contact lenses.

Our lecture sessions will be special presentations, providing new information (and some surprises) in the subjects of Cataract/IOL Surgery, Contact Lenses and Glaucoma.

## Scientific Program

**Monday, February 15, 1982**  
7:30 - 8:00 Breakfast (complimentary)  
In The Exhibit Area  
8:00 - 8:40 Worst: Special Presentation -  
Intraocular Lens Implants, Part I.  
8:45 - 10:15 (Instruction Course A) Leiske:  
The Leiske IOL  
(Instruction Course B) To be announced  
10:15 - 10:35 Break - Visit Exhibits  
10:35 - 11:15 Stein: Special Presentation - Aphakic  
Contact Lenses  
11:15 - 11:55 Herschler: Special Presentation - Glaucoma  
11:55 - 12:55 Lunch (Complimentary)  
In The Exhibit Area  
12:55 - 2:25 (Instruction Course C) Choyce:  
The Choyce IOLs  
(Instruction Course D) Aphakic  
Contact Lenses - To be announced  
2:30 - 4:00 (Instruction Course E) Tennant:  
The Tennant IOLs  
(Instruction Course F) Barnet:  
The Transioidectomy - Clip IOL  
5:00 - 7:00 Welcoming Cocktail Party (Complimentary)

**Tuesday, February 16, 1982**  
7:30 - 8:00 Breakfast (Complimentary)  
In The Exhibit Area  
8:00 - 8:40 Worst: Special Presentation -  
Intraocular Lens Implants, Part II  
8:45 - 10:15 (Instruction Course G) Simcoe:  
The Simcoe IOL  
(Instruction Course H) Kelman:  
The Kelman IOLs  
10:15 - 10:35 Break - Visit Exhibits  
10:35 - 11:55 Faculty Discussion and Questions from  
The Audience  
11:55 - 12:55 Lunch (Complimentary)  
In The Exhibit Area  
12:55 - 2:25 (Instruction Course I) Stein: The Iris-suture  
IOL and The Severin IOL for Intracapsular  
Extraction  
(Instruction Course J) Sheets:  
The Sheets IOL  
2:30 - 4:00 (Instruction Course K) Shearing:  
The Shearing IOL  
(Instruction Course L) Aphakic Contact  
Lenses - To be announced

**Wednesday, February 17, 1982**  
7:30 - 8:00 Breakfast (Complimentary)  
In The Exhibit Area  
8:00 - 8:40 Worst: Special Presentation -  
Intraocular Lens Implants, Part III  
8:45 - 10:15 (Instruction Course M) Sinskey:  
The Sinskey IOL  
(Instruction Course N)  
To be announced  
10:15 - 10:45 Break - Final opportunity to visit  
exhibits  
10:45 - 12:05 Faculty Discussion and Questions  
From The Audience  
12:05 Lunch (Complimentary)

Approved for 17 Hours CME Category 1 Credit

For registration information please write:

**The Eye Foundation 421 North 18th Street Suite 105 Phoenix, Arizona 85006 Phone: (602) 257-1077**

## Neuropathology or Neuroradiology Conferences

Friday, 9 a.m., Neuropathology in Neuropathology Conference Rm., Neuroradiology in First Floor Conference Rm.

## Neurorehabilitation Conference

Tuesdays, noon, 8th Floor Conference Rm.

## Neurosurgical Journal Club

Saturdays, 9-11 a.m. in Eighth Floor Conference Rm.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Thunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED.D., Director of Education.

## Medical Department Continuing Medical Education

4th Wednesday, 12 Noon, C119. May, July, Sept. & Nov.

## Tumor Board

Last Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept. & Nov.

## Surgical Department CME

4th Friday, 7 A.M., Educ. Center Classrooms I & II. Contact: Brian Updegraff, M.D.

## CAMELBACK HOSPITAL

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr., M.D.

## Clinical Conference

3rd Tuesday, 8-9 a.m.

## DESERT SAMARITAN HOSPITAL

1400 South Dobson Road, Mesa, Arizona. Contact: L.A. Rosati, M.D. Approved for category 1 credit.

## CME Programs

Weekly Tuesday, 7 p.m., Cafeteria-West End.

## Clinical Conference - Dept. of Medicine

Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch, Grande Rm.

## OB/GYN Medical Staff Conference

Weekly, Monday, 12:30-1:30 p.m. Grande Rm.

## Pediatric Case Conference

2nd. Friday, 12:30 p.m., Grande 2

## DOCTORS HOSPITAL

1747 East Thomas Road, Phoenix, Arizona 86016 Contact: Medical Staff Secretary for additional information.

## Physicians Continuing Education Program

1st Thursday, 12:30 p.m., Classrooms.

## EL DORADO HOSPITAL TUCSON (THMEP)

1400 N. Wilmont Road, Tucson, AZ 85712. Contact: Eric G. Ramsay, M.D. Approved for category 1 credit.

## Family Practice Department Meeting

1st Monday, 12 Noon, Contact: R. Grossman, M.D.

## FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA

1215 N. Beaver Street, P.O. Box 1266 Flagstaff AZ 86002. Contact: B. C. Hirschberg, M.D., CME Program Clinical Conference. Approved for category 1 credit.

## Interesting Case Conference

1st Tuesday, 12:30 P.M., Tollefson Rm.

## Clinical Conferences

Weekly Tuesdays, 12:30 P.M., Tollefson Rm.

## Tumor Board Case Conference

3rd Tuesday, 12:30 P.M., Hospital Conf. Rm.

## Mortality & Morbidity Conference

1st Thursday, 12:30 P.M., Hospital Conf. Rm.

## GOOD SAMARITAN HOSPITAL

1033 East McDowell Rd., Phoenix, AZ Contact: W. J. Howard, M.D. Approved for category 1 credit.

## Anatomical Path. & Cytology

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf. Rm.

## Gynecological Section Conference

2nd Monday, 12:30-1:30 p.m., West Rm.

## Monday Noon Conference

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

## Mortality/Morbidity, Surgery Comm.

2nd Monday, 11:30-2:00 p.m., West Rm.

## Obstetrical Section Conference

1st Monday, 12:30-1:30 p.m., West Rm.

## Pulmonary Disease Grand Rounds

Weekly, 12:00-1:00 p.m., D-5 North

**Family Practice Conference**  
Weekly Tuesday, 12:00-1:00 p.m., Fam.  
Practice Conf. Rm.

**Pediatric Grand Rounds**  
Wed. Tuesday, 7:30-8:30 a.m., Contact: Paul  
Pergeson, M.D.

**M & R Noon Inservice**  
Wed & 4th Tuesday, 12 Noon, R-2 Conference  
Rm.

**Surgical Grand Rounds**  
Weekly, Tuesday 7:00-8:30 a.m. East Rm

**Clinical Cancer Forum**  
Wed Wednesday, 12:00-1:00 p.m., West Rm,  
Contact: John A. Bruner, M.D.

**Combined Cardiovascular & Family Practice  
Conf.**  
2nd, & 4th Wed., 12:00-1:00 p.m., D-5  
North.

**Learning Disabilities**  
Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

**OB/GYN Dept. Review & Statistics**  
Weekly, 12:30-3:00 p.m., OB/GYN Conf. Rm.

**Gynecological Pathology**  
Weekly Thursday, 1:00-2:00 p.m., S-4 Conf  
Rm.

**Radiology Conference**  
1st Thursday, 12:00-1:00 p.m., F151,  
Radiology Conf. Rm.

**Phoenix Ultrasound Soc. Meeting.**  
Medical Education Building, Contact: Dr.  
Ken Ora

**Neurology Grand Rounds**  
Weekly Thursday, 9:00-10:00 a.m., D-5 North.

**Tumor Treatment Planning Conf.**  
Wed & 4th Thursdays, 12:00-1:00 p.m., F151  
Radiology

**Joint Tumor Gyn Conference**  
Wed Friday, 12:30-1:30 p.m., West Rm.

**Medical Grand Rounds**  
Weekly Friday, 8:00-9:00 a.m., West Rm.

**Neuropathy Conference**  
Wed Friday, 1:15-2:15 p.m., S-4 Morgue.

**Psychiatry Grand Rounds**  
Weekly Friday, 11:30-1:00 p.m., East Rm.

## KINO COMMUNITY HOSPITAL,(THMEP)

300 E. Ajo Way, Tucson, AZ. 85713. Contact:  
Eric C. Ramsay, M.D., Approved for Category  
I credit.

**Attending's Hour**  
1st Monday, 12:30 p.m., Contact: J.  
Goldberger, M.D.

**Infectious Disease Conference**  
Wed Monday, 12:30 p.m., Contact: Barry  
Friedman

**Ophthalmology Conference**  
Wed Monday, 12:30 p.m., Contact: Bruce  
Gilliers, M.D.

**Psychiatric Conference**  
Wed & 4th Mondays, Contact: J. Santiago,  
M.D.

**Surgical Conference**  
Weekly Mondays, Contact: R. Fischer, M.D.

**Cardiology Conference**  
Wed Tuesday, 12:30 p.m., Contact: B. Phibbs,  
M.D.

**Clinical Pharmacology Conference**  
Wed Tuesday, 12:30 p.m., Contact: M. Katz,  
Clinical Pharm.

**Neurology Conference**  
Wed 1st & 3rd. Tuesday, 12:30 p.m., Contact: J.  
Laguna, M.D.

**Radiology Conference**  
Wed Tuesday, 12:30 p.m., Contact: M. Baker,  
M.D.

**Medical Surgical Grand Rounds**  
2nd Wed., 12:30 p.m., Contact: Chief Medical  
Resident

**Medical Conference**  
1st Wed, 12:30 p.m., Contact: Chief Medical  
Resident

**Cardiology Conference**  
1st Thursday, 12:30 p.m., Contact: B. Phibbs,  
M.D.

**Endocrine Conference**  
2nd Thursday, 12:30 p.m., Contact: E.  
Munjack, M.D.

**GI Conference**  
4th Thursday, 12:30 p.m., Contact: C. Kanun,  
M.D.

**Mortality & Morbidity Conference**  
3rd. Thursday, 12:30 p.m., Contact: E.  
Munjack, M.D.

**OB/GYN Dept. Meeting**  
2nd Thursday, 2 p.m., Contact J. Wurzel, M.D.

**OB/GYN Pathology Conference**  
Weekly, Thursday, except 2nd, Contact: J  
Wurzel, M.D.

**OB/GYN Sonograph/X-ray Conference**  
4th Thursday, 3 p.m., Contact: J. Wurzel, M.D.

**Clinical Pathology**  
5th Thursday, 12:30 p.m., Contact: J.  
Fleishman, M.D.

**Renal Conference**  
1st Friday, 12:30 p.m., Contact: T. Pence,  
M.D.

**Hematology Conference**  
2nd & 4th Friday, Contact: S. Ketchel, M.D.

**Rheumatology Conference**  
3rd Friday, 12:30 p.m., Contact: J.  
Goldberger, M.D.

## SECOND ANNUAL Arizona ACEP Symposium February 3 - 5, 1982

### RESUSCITATION *"Pitfalls, Pearls and Promises"*

La Posada Resort Hotel  
4949 East Lincoln Drive  
Scottsdale, Arizona

The program will focus on three vital organ  
systems: heart, lungs, and brain. Pathophysiologic  
conditions leading to arrest, actual mechanisms of  
arrest, and resuscitative techniques will be  
discussed in detail, with special emphasis on the  
newest techniques for minimizing organ damage.

18 hours of Category I CME credit have been  
applied for through ACEP, AAFP and the AMA's  
Physicians Recognition Award.

For further information and brochure, contact:  
Beverly Richter, AZ ACEP, 810 West Bethany Home  
Road, Phoenix, AZ 85013. Phone: 602/246-8901.

**Chest Conference**  
5th Friday, 12:30 p.m., Contact: D.  
Engelsberg, M.D.

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008

**Continuing Medical Education Program**  
2nd & 4th Wednesday, 12:30 p.m.,  
Conference Rms.

**Clinical Conferences**  
2nd & 4th Wednesday, 12-1 p.m., Medical  
Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008.  
Contact: Leonard Tamsky, M.D.

**Medicine Conference**  
Daily 12-1 p.m., Contact: S. Schaffner, M.D.

**Chest Surgery Conference**  
Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

**Hematology Conference**  
2nd Tuesday, 1:00 p.m., Contact: Walt  
Koppenbrink, M.D.

**OB/GYN Dept. Grand Rounds**  
Weekly Tuesday, 12 Noon, Santa Cruz Room

**Obstetrical Problem Conference**  
Weekly Tuesday, 7:30 a.m., Yavapai Rm

**Orthopedic Conference**  
Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

**Pediatric Grand Rounds**  
2nd Tuesday, 7:30-8:30 a.m., Contact: Robert  
Ganelin, M.D.



**Urology Discharge Planning Conference**  
Weekly, 11:30 a.m., Station 42

**Hand Surgery Conference**  
Weekly Wed, a.m., Santa Cruz Rm.

**Neurosurgery Discharge Planning**  
Weekly Wed., 1:30 p.m., Station 42.

**OB/Neonatology Seminar**  
Weekly, Wed. 7:30 a.m., Yavapai Rm.

**Clinical Psychiatric Conference**  
Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

**Surgery Conference**  
Weekly Wed., 7-8 a.m., Surgical Dept.

**Current Concepts in Medicine & Surgery**  
1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

**Cardiology Conference**  
Weekly Thurs., 2 p.m., Santa Cruz Rm.

**OB/GYN Resident Conference**  
Weekly Thurs., 12 p.m., Yavapai Rm.

**GYN Endocrine Seminar**  
1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

**OB/GYN Surgical Pathology Conf.**  
Weekly Friday, 7:30 a.m., Yavapai Rm.

**Orthopedic X-Ray Conference**  
Weekly Friday, 7:30 a.m., Santa Cruz Rm.

## MESA LUTHER HOSPITAL

525 West Brown Rd., Mesa, Arizona 85201.  
Contact: Medical Staff Office.

**Continuing Medical Education Programs**  
Tuesdays, 6:30 p.m., Ocotillo Rm.

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.  
Contact: Leonard M. Lapenson, M.D.,  
Approved for category 1 credit.

**Clinical Conferences**  
1st, 2nd & 3rd Tuesdays, 12 noon, 5th floor  
auditorium.

**CPC or Medical-Surgical Forum**  
4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.  
Contact: Leland L. Fairbanks, M.D.,  
Approved for category 1 credit.

**Pediatric Grand Rounds**  
1st Tuesday, 7:30-8:30 a.m., Contact: D.  
Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**  
Wed. Weekly, 8:00 a.m.

**Otolaryngology Grand Rounds**  
4th Wednesday, 4-5 p.m., Conference Rm. A,  
Contact: N. Wendell Tood, M.D.

**Family Practice/Emergency Room Teaching  
Conference**  
Thursday Weekly, 7:30-8:30 a.m., Conf. Rm.  
A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact:  
George Scharf, M.D. Approved for category 1  
credit.

**Monthly Medical Education Seminar**  
3rd Monday, 6:30 p.m., Kiva Conf. Rm.

**Clinical Conferences**  
Weekly Tuesday, 12:30 p.m., Kiva  
Conference Rm.

**Tumor Board Conference**  
Weekly Friday, 12 p.m., Kiva Conf. Rm.  
Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251.  
Contact: W. S. Williams, M.D., Approved for  
category 1 credit.

**Family Practice Conference**  
1st Monday, 12:30 p.m., Doctors' Lounge

**Emergency Medical Services Conference**  
2nd Monday, 12:30 p.m., Doctors' Lounge

**Neurology/Neurosurgery Conference**  
3rd Monday, 12:30 p.m., Doctors' Lounge

**CPC Conference**  
4th Monday, 12:30 p.m., Doctors' Lounge

**Pediatrics Conference**  
5th Monday, 12:30 p.m., Doctors' Lounge

**Pulmonary Conference**  
1st Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiology Conference**  
2nd Tuesday, 12:30 p.m., Doctors' Lounge

**Surgery Conference**  
3rd Tuesday, 12:30 p.m., Doctors' Lounge

**Resident Grand Rounds**  
4th Tuesday, 12:30 p.m., Doctors' Lounge

**Medical Subspecialties**  
5th Tuesday, 12:30 p.m., Doctors' Lounge

**Urology Conference**  
3rd Thursday, 12:30 p.m., Doctors' Lounge

**Tumor Conference**  
4th Thursday, 12:30 p.m., Doctors' Lounge

**GI/Med/Surg/Radiology Conference**  
2nd Friday, 12:30 p.m., Doctors' Lounge

## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85013.  
Contact: Joseph C. White, M.D.

**OB/GYN Section Conference**  
3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor  
Conf. Rm.

**Genetics Conference**  
Weekly Monday, 12:30 p.m., Pediatric  
Department.

**Pediatric Rounds**  
Weekly Monday, Wed. & Friday, 10:30 a.m.,  
Pediatric Department.

**Pediatric Grand Rounds**  
4th Tuesday, 7:30-8:30 a.m., Contact: J. Kipp  
Charlton, M.D.

**ECG Conference**  
Weekly Tuesday, 12:30 p.m., Pediatric  
Department.

**Medical Grand Rounds**  
Weekly Wednesday, 8 a.m., 1st Floor Conf.  
Room.

**Visiting Professor Formal Presentation**  
Weekly Thursday, 8 a.m., PIMC

**Visiting Professor Informal Presentation**  
Weekly Thursday, 9:30 a.m., 1st floor Conf.  
Rm.

**Visiting Professor Formal Presentation**  
Weekly Thursday, 12:30 p.m., PIMC

**Nephrology Conference**  
Weekly Fridays, 12:30 p.m., Pediatric  
Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact:  
Eric G. Ramsay, M.D. Approved for Category  
1 credit.

**Family Practice Department Meeting**  
3rd Tuesday, 12 p.m., Contact: Wm  
Moteforte.

**Ophthalmology Morbidity/Mortality Conf.**  
4th Tuesday, 12:15 p.m., Contact: Kir  
Sowards.

**Current Concepts in Medicine**  
Weekly, Tuesday, 12 p.m., Auditorium.

**Hematology-Oncology Conference**  
Last Wednesday, 12:15-1:15 p.m., Contact: S  
Salmon, M.D.

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact:  
Gerald L. Hansbro, M.D.

**Cardiac Conference**  
Weekly Monday, 12:15 p.m., Auditorium

**Surgery Conference**  
1st Tuesday, 12:15 p.m., Auditorium

**Emergency Medicine Conference**  
1st Wednesday, 12:15 p.m., Auditorium

**Cardiovascular-Thoracic Record Review**  
3rd Wednesday, 12:15 p.m., Auditorium

**Psychiatry Conference**  
3rd Thursday, 7 a.m., Auditorium

**Combined Medical General Practice  
Conference**  
1st Friday, 12:15 p.m., Auditorium

**Toxicology Grand Rounds**  
2nd Friday, 7:30 a.m., Auditorium

**Ophthalmology Conference**  
1st Saturday, 8:30 a.m., Auditorium.

## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W. St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.

**Monthly Specialty Conference-Dept. of  
Surgery**  
1st Monday, 7:30 a.m., Century Rm. A  
Contact: Med. Staff Office.

**Grand Rounds: Medical Surgical, Famil  
Practice, Pathology, Radiology**  
Weekly Thursday

**Emergency Medicine Lectures**  
Weekly Thursday, 8 a.m., Century Room A

**Mental Health Update**  
1st Friday, 11:30-1:00 p.m., Century Rm. A.

**Cardiology Conference**  
Weekly Friday, 8:00-9:00 a.m., Century Rm  
Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.  
Contact: Eric G. Ramsay, M.D. Approved fo  
Category 1 credit.

**Cardiology Conference**  
Weekly Monday, except last, 12 Noon  
Contact: J. Fernadez, M.D.

**Dermatology Conference**  
4th Monday, 5:00 p.m., Contact: R. Miller  
M.D.

**Endocrinology Conference**  
Last Monday, 12 p.m., Contact M. Parker  
M.D.

**Perinatal Conference**  
2nd Monday, 7:30 p.m., Contact: J. Lohman  
M.D.



**works well in your office...**

## **NEOSPORIN® Ointment** (polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**works just as well in their homes.**

- It's effective therapy for abrasions, lacerations, open wounds, primary pyodermas, secondarily infected dermatoses.
- It provides broad-spectrum overlapping antibacterial effectiveness against common susceptible pathogens, including staph and strep.



- It helps prevent topical infections, and treats those that have already started.
- It contains three antibiotics that are rarely used systemically.
- It is convenient to recommend without a prescription.

**NEOSPORIN® Ointment—for the office, for the home.**  
(polymyxin B-bacitracin-neomycin)

**Effective • Economical • Convenient • Recommendable**

Each gram contains: Aerosporin® (Polymyxin B Sulfate) 5,000 units, bacitracin zinc 400 units, neomycin sulfate 5 mg (equivalent to 3.5 mg neomycin base); special white petrolatum qs; in tubes of 1 oz and 1/2 oz and 1/32 oz (approx.) foil packets.

**WARNING:** Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neomycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as a failure to heal. During long-term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

**PRECAUTIONS:** As with other antibacterial preparations, prolonged use may result in overgrowth of non-susceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

**ADVERSE REACTIONS:** Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section).

Complete literature available on request from Professional Services Dept. PML.



**Burroughs Wellcome Co.**  
Research Triangle Park  
North Carolina 27709



**Chest Conference**

3rd Tuesday, 12 noon, Contact: William Nevin, M.D.

**Hematology Conference**

4th Tuesday, 12 Noon, Contact: M. Boxer, M.D.

**Infectious Disease Conference**

2nd Tuesday, 12 noon, Contact: B. Friedman, M.D.

**Nephrology Conference**

1st Tuesday, 12 noon, Contact: Dr. Seltzer.

**Orthopedic Conference**

1st Tuesday, 8:00 p.m., Contact: Jay Katz, M.D.

**Pediatric Grand Rounds**

1st & 3rd Tuesday, 12:30 p.m., Contact: Dr. Lightner.

**Cardiac Cath. Conference**

2nd & 4th Wednesday, 5:15 p.m., Contact: L. Buckels, M.D.

**Clinical Pathology Conference**

Last Wednesday, 8:00 a.m., Contact: Dr. Fuchs.

**Family Practice Meeting**

2nd Wednesday, 12:30 p.m., Jan., April, July, & Oct. Contact: C. Mangelsdorf, M.D.

**Medical Conference**

Weekly Wednesday, 8:00 a.m., Contact: M. Fuchs, M.D.

**Neurology-Neurosurgery Conference**

Weekly Wednesday, 12 noon, Contact: H. W. Buschsbaum, M.D.

**Dermatology Conference**

1st Thursday, 12 noon, Contact: R. Friedman, M.D.

**Neuroradiology Conference**

Weekly Thursday, 5:00 p.m., Contact: N. Komar, M.D.

**Tumor Conference**

Weekly Thursday, 12 noon, Contact: Dr. Hastings.

**G—I Conference**

Weekly Friday, 12 noon, Contact: C. Krone, M.D.

**Interhospital Nuclear Medicine Conference**

Weekly Friday, 7:15 a.m., Contact: S.V. Hilts, M.D.

**OBGYN Conference**

1st Friday, 7:30 a.m., Contact: P. Evans, M.D.

**OBGYN Pathology Conference**

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

**Surgical Department Conference**

Weekly Saturday, 7:30 a.m., Contact: Dr. Hastings, TMC.

**Surgical Grand Rounds**

Weekly Saturday, 9:00 a.m., UAHSC-Room 5403, Contact: Dr. Norton.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix, AZ 85012. Contact: Alfred Heilbrunn, M.D. Approved for Category 1 credit.

**GI X-Ray Clinical Correlation Conf.**

1st & 3rd Monday, 1 p.m., Rm. C435, Contact: Drs. Sanowski, & Nielsen.

**Medical/Surgical GI Conference**

1st & 3rd Mondays, 3 p.m., Rm. 3134, Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext 493.

**GI Pathology Conf.**

2nd & 4th Monday, 1 p.m., Path Conf. Rm, Contact: Dr. Sanowski..

**Orthopedic Surgery Conference**

2nd Monday, 7:30 a.m., Rm 3134, Contact: Dr. Russo.

**Surgery - Pathology Conference**

4th Monday, 4:00 p.m., Rm 2128, Contact: Dr. Mertz & Dr. Lanard.

**GI Grand Rounds**

Weekly Tuesday, 1 p.m., Contact: Drs. Sanowski, Kozarek, after GI Grand Rounds Rm T-5.

**Housestaff Pulmonary Disease Teaching Conf.**

Weekly Wed., 3-4 p.m., Contact: Dr. Rohwedder, Ext. 388.

**Medical Surgical Chest Conference**

1st & 3rd Thursday, Contact: Dr. Rohwedder or Dr. Gill.

**Cardiology Conference**

2nd Thursday, 1 p.m., Rm. T-5, Contact: Dr. Habibzede.

**GI Consultant Rounds**

1st Thursday, 1:30 p.m., Rm. T-5.

**Cancer Symposium**

Weekly, 3-4:00 p.m., Rm. T-5, Contact: Dr. Byrne, Ext. 426.

**Medical Service Grand Rounds**

Weekly Friday, 11 a.m., Rm. T-5, Contact: Dr. Zeller

**Surgical Journal Review & Videotape Session**

Weekly 1 p.m., Room 3134.

## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed below. Approved for category 1 credit.

**Medical Rounds**

1st & 3rd Thursdays, 10:00 a.m.-2:30p.m.

**Surgical Rounds**

4th Thursday, 10 a.m.-2:30 p.m.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723. Contacts listed below. Approved for category 1 credit.

**Medical Surgical Chest Conference**

Weekly Tuesday, 2 p.m., Contact: Dr. Young

**Medical Grand Rounds**

Weekly Wed., 12-1:00 p.m., VA Hospital Staff Conf. Rm. & (AHSC), Contact: Jay Smith, M.D.

**Surgical Grand Rounds**

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

**Endocrinology Seminar**

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm. N318, Contact: Dept. of Internal Medicine.

**Grand Rounds**

Weekly, Thursday, 11 a.m., Bldg. 107, Contact: J. Fitzharris, D.O.

**Vascular Radiology, Interesting Case Conf.**

Weekly Thursday, 12:00 noon.

**Neurology Grand Rounds**

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

**Radiology Conference**

1st Tuesday, 7:00 a.m.

**Operation Outreach**

2nd Tuesday, 6:30 p.m.

**Pathology Conference**

4th Tuesday, 7:00 a.m.

**Operation Outreach**

2nd Wednesday, 7:00 a.m.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson AZ 85724. Robert M. Anderson, M.D., Dir. of CME. Contact: See below. Approved for category 1 credit.

**Anesthesiology Board Review Conference**

2nd & 4th Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contacts: Dr. Vaughn & Kryc.

**Anesthesiology Basic/Clinical Sciences Lectures**

Weekly Thursday, 4-5 p.m., Room 5403

**Anesthesiology Case Discussion**

Weekly Wed., 7:00 a.m., AHSC, Dining Rm C&D.

**Anesthesiology Resident Presentation**

1st Monday, 4-5 p.m., AHSC Dining Room C&D, Contacts: Drs. Otto & Zehngut.

**Cancer Center Tumor Board Seminar**

3rd Tuesday, Monthly, 12-1 p.m., HSC Auditorium, Contact: Cancer Center

**Cardiac Catheterization Conference**

Weekly Friday, 4:00 p.m., Contact: Dr. Temkin.

**Cardiology Research Conference**

Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

**Tucson Cardiovascular Society**

1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

**Clinical Immunology, Allergy****& Rheumatology Rounds**

Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

**Cerebrovascular Disease Conference**

Mondays, 5-6 p.m., Weekly, Rm. 5505 Contact: Jerry Goldston, M.D., Department of Surgery.

**Dermatology Rounds**

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

**Endocrinology Seminar**

Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

**Emergency Medicine Grand Rounds**

Tuesdays, 9 a.m., AHSC, Contact: Dr. Sanders.

**GI Pathology Conference**

4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

**GI Radiology Conference**

2nd & 4th Mondays, 7:30 a.m., AHSC Contact: Dr. T. Hunter

**Head & Neck Tumor Management Conference**

Weekly Wed., 4:00 p.m., Contact: Dr. Manning

**Hematology-Oncology Clinical Conference**

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact: S. Salmon, M.D., Dept. of Internal Medicine.

**Medical Grand Rounds**

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

# NEW HORIZONS IN THE MANAGEMENT OF THE INSULIN-DEPENDENT DIABETIC

## *The First in a Series of* CURRENT PERSPECTIVES

Presented by the Arizona Medical Association  
Thursday, December 10, 1981 - 1:00 to 4:30 P.M.

*Arizona Medical Association Building  
810 West Bethany Home Road  
Phoenix, Arizona 85013*

### **New Tools in the Management of the Insulin-Dependent Diabetic**

Robert L. Nielsen, M.D., The Mason Clinic, Seattle, Washington

### **The Challenge of the Pregnant Diabetic**

Neil Trachtenberg, M.D., Phoenix, Arizona

### **Microvascular Disease and Renal Failure**

Michael A. Busy, M.D., U.C.L.A. School of Medicine, Los Angeles, California

### **Modern Management of Diabetic Retinopathy**

Stanley R. Shorb, M.D., Phoenix, Arizona

This program is certified as meeting the criteria for 3½ hours of Category 1 CME credit.

There is no registration fee but advance registration is essential.

#### **Neuromuscular Disease Conference**

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

#### **Neuropathology Review Conference**

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

#### **Neuroradiology Conference**

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

#### **Neuromuscular Journal Conference**

2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

#### **Neuropathology Case Review**

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

#### **Neurosciences Seminar**

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

#### **Nuclear Medicine**

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

#### **Ophthalmology Grand Rounds**

3rd Friday, 7:30 a.m., AHSC, Contact: Dr. J. Herschler

#### **Orthopedic Rounds**

Saturday, 8:00 a.m., Contact: Dr. Peltier.

#### **Pain Conference**

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

#### **Pathology Seminar**

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

#### **Tucson Pathologist Conference**

1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

#### **Pediatric Grand Rounds**

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

#### **Pediatric Problem Patient Conference**

Weekly Wed., 8:00 a.m., Contact Dr. Walson

#### **Pediatric Research Forum**

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

#### **Pediatric Specialty Conference**

Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

#### **Psychiatric Grand Rounds**

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

#### **Psychiatric Monthly Case Conference**

2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

#### **Pulmonary Rounds**

Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

#### **Chest Radiology**

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

#### **Neuroradiology Teaching Conference**

Weekly Wednesday, 7:30 a.m., AHSC. Contact: Dr. Christenson

#### **Radiation Oncology Planning Conference**

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

#### **Radiology Interesting Case Conference**

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

#### **Gastrointestinal Radiology**

Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

#### **Radiology-Rheumatology Conference**

Weekly Thursday, 7:45 a.m., UAHSC, Library Rm.1535C.

#### **Uroradiology (Genitourinary Radiology)**

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC. Contact: Dept. of Radiology

#### **Renal Pathology Conference**

1st & 3rd Thurs., 11:30 a.m., Contact: Dr. Nagle.

#### **Residents Noon Conference**

Weekly Tuesday & Thursday, 12:00 noon, AHSC, Contact: Dr. A. Greensher.

#### **Resident's Conference**

Wednesday, weekly 5-6 p.m., Diag. Radiology Conf. Rm.

#### **Surgical Grand Rounds**

Saturdays, 9:00 a.m., Rm. 5403, AHSC. Contact: Dr. Wangenstein.

#### **Surgical Morbidity & Mortality Conference**

Weekly Wed., 8:00 a.m., Contact: Dr. Wangenstein.

#### **Vascular Surgery Conference**

Weekly Tuesdays, 5-6 p.m., AHSC Dining Room E.

#### **Joint Thyroid Conference**

1st & 3rd Wed., Contact: S. C. Werner, M.D.

#### **Trauma Conference**

Monday, 4:00 p.m. UAHSC, Rm. 4410, Contact: Dr. Peltier.

#### **Toxicology Conference**

Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes Section.

#### **Tucson Ultrasonography Group**

Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

#### **General Urology Conference**

Weekly Thursday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach.



# Another good reason to insure with MICA is YOUR Premium Payment Provision

MICA offers you the option of paying your premium in quarterly installments without any interest or carrying charges. This feature allows you to budget your premium payments over the year without having to pay one large amount at one time.

For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402

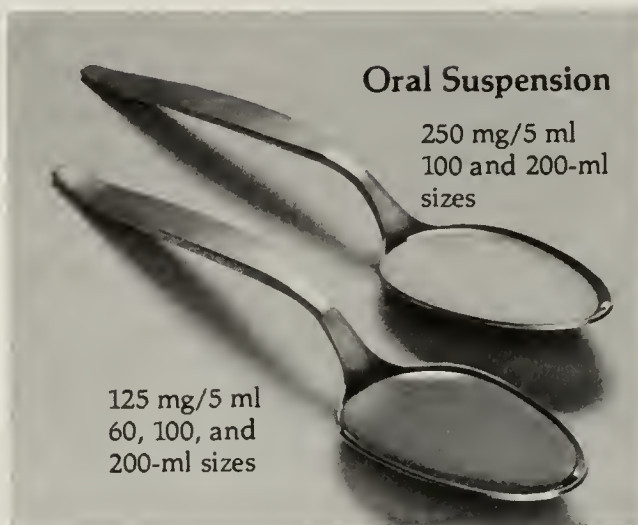
MICA MICA MICA MICA MICA

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association

# easy to take



250-mg Pulvules®



Oral Suspension

250 mg/5 ml  
100 and 200-ml  
sizes

125 mg/5 ml  
60, 100, and  
200-ml sizes



Pediatric Drops

100 mg/ml  
10-ml size

# Keflex®

cephalexin

Additional information available  
to the profession on request.



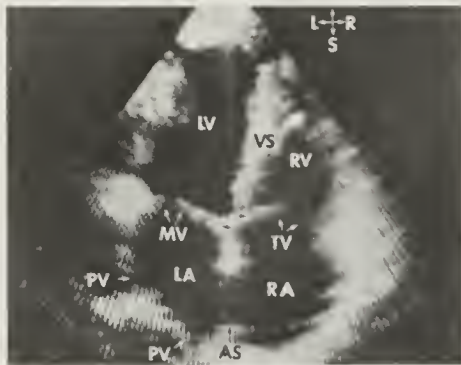
000823

Dista Products Company  
Division of Eli Lilly and Company  
Indianapolis, Indiana 46285  
Mfd. by Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630

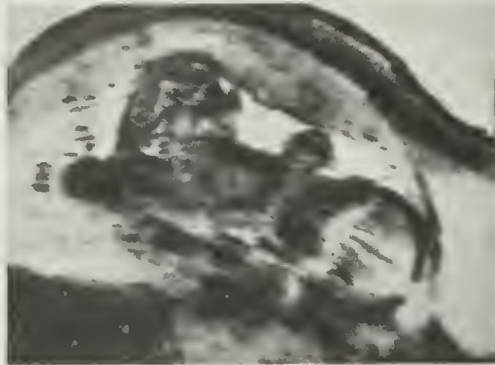


# DIAGNOSTIC ULTRASOUND

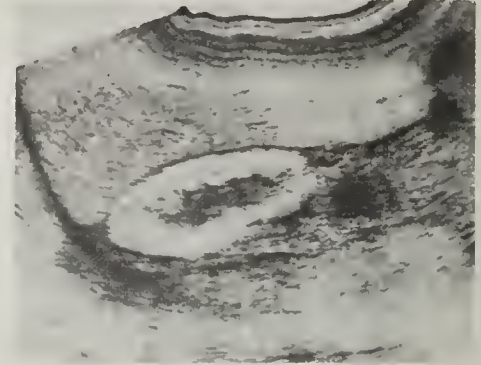
PERFORMED IN A PLEASANT ENVIRONMENT  
WITH THE ECONOMIC CONVENIENCE  
OF A PRIVATE OFFICE



4 Chamber View of Heart



Third Trimester Pregnancy



Normal Liver and Kidney

A safe non-invasive modality for evaluation of the  
Abdomen • Gravid Uterus • Heart • Eye • Thyroid • Retroperitoneum • Vascular Tree

Ben-Ora Imaging, Ltd.  
Avi Ben-Ora, M.D.  
909 E. Brill Street, Suite 210  
(602) 254-4577

Ultrasound Diagnostic Services  
Avi Ben-Ora, M.D., Med. Director  
3411 N. 5th Ave., Suite 410  
(602) 279-9375

*GIVE THE GIFT THAT CONTINUES TO GIVE...*

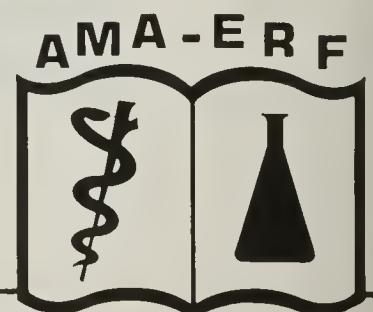
## **A Donation to the American Medical Association Education and Research Foundation**

Your donation to AMA-ERF goes to work immediately for the benefit of  
present and future generations helping the medical school of your choice.

- Further excellence in medical education
- Provide financial assistance to students
- Foster scientific research

*...and your gift is TOTALLY TAX-DEDUCTIBLE*

Send your check payable to AMA-ERF to:  
Mrs. Dennis Weiland  
AMA-ERF Chairman  
Arizona Medical Association Auxiliary  
5826 North Monte Vista  
Paradise Valley, Arizona 85253





n Hypertension...When You Need to Conserve K<sup>+</sup>

Every  
Step  
of the  
Way

Each capsule  
contains 50 mg. of  
Dyrenium® (brand of triamterene)  
and 25 mg. of hydrochlorothiazide.

DYAZIDE®

ADD OR SUBSTITUTE  
GUANETHIDINE

DYAZIDE®

ADD  
VASODILATOR

ADD BETA-BLOCKER, CNS  
INHIBITOR OR RESERPINE

DYAZIDE®

EFFECTIVE STEP 1  
DIURETIC THERAPY<sup>†</sup> (when the  
combination represents previously titrated dosage)

<sup>†</sup>Step 1 usually consists of an initial phase (a diuretic alone), a titration phase (dosage adjustment and/or addition of a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent), and a maintenance phase (a diuretic alone or in combination with a K<sup>+</sup> supplement or K<sup>+</sup>-sparing agent).

Serum K<sup>+</sup> and BUN should be checked periodically (see Warnings).

Before prescribing, see complete prescribing information in SK&F Co. literature or PDR. The following is a brief summary.

#### WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum K<sup>+</sup> levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict K<sup>+</sup> intake. **Associated widened QRS complex or arrhythmia requires prompt additional therapy.** Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and

triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Watch for signs of impending coma in severe liver disease. If spironolactone is used concomitantly, determine serum K<sup>+</sup> frequently, both can cause K<sup>+</sup> retention and elevated serum K<sup>+</sup>. Two deaths have been reported with such concomitant therapy (in one, recommended dosage was exceeded, in the other, serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis and aplastic anemia have been reported with thiazides. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. Dyazide® interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with Dyazide®, but should it develop, corrective measures should be taken such as potassium supplementation or increased

dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and Dyazide should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. Dyazide should be withdrawn before conducting tests for parathyroid function.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth, anaphylaxis, rash, urticaria, photosensitivity purpura, other dermatological conditions, nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances. Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and rarely allergic pneumonitis have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis and of impotence have been reported with the use of Dyazide®, although a causal relationship has not been established.

**Supplied:** Bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

**SK&F CO.**  
a SmithKline company  
Carolina, PR 00630





## Gregory Peck offers you 12 ways to save energy.

*This free brochure and a walk through your house could cut your home energy use by 25%.*

*For example, the brochure tells you to insulate the gaps you left the first time around. Look for them.*

*It tells you to lower your water temperature to 120 degrees. Check it.*

*It tells you 10 other proven money-savers. Follow them.*

*Best of all, it tells you that saving energy makes sense. Dollars and cents.*

*Mail the coupon to the Alliance to Save Energy today.*



**THE ALLIANCE TO  
SAVE ENERGY**

Box 57200, Washington, D.C. 20037

Please send me your energy-saving,  
money-saving brochure

NAME \_\_\_\_\_

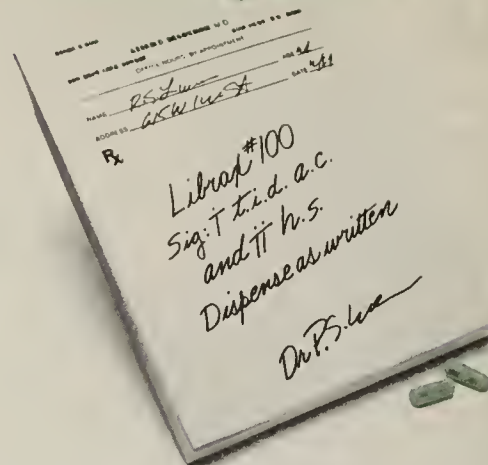
ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_



A public service message from this  
magazine and the Advertising Council

# Specify Librax®



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows  
"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis  
Final classification of the less-than-effective indications requires further investigation.

**Contraindications:** Glaucoma, prostatic hypertrophy, benign bladder neck obstruction, hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants, and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium® (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage, withdrawal symptoms (including convulsions) reported following discontinuation of the drug

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy. Advise patients to discuss therapy if they intend to or do become pregnant.

As with all anticholinergics, inhibition of lactation may occur

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially, increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression, suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants, causal relationship not established

**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated, avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction, changes in EEG patterns may appear during and after treatment, blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets



Roche Products Inc.  
Manati, Puerto Rico 00701

# Irritable BOWEL SYNDROME\*

Artist's concept of myoelectrical slow waves of the colon which seem to determine the frequency of colonic motor activity.

## A visible difference in myoelectric rhythms of the colon

Studies reveal an increased frequency of 3-cycles-per-minute slow wave basic electrical activity in the colons of patients with IBS—a significant difference in basic colonic rhythm patterns from normal subjects.<sup>1,2</sup> These findings suggest a physiological basis for the spasm and hypermotility characteristic of IBS. The role of severe anxiety in triggering or aggravating such symptoms has long been recognized. Consequently, treatment should focus on both aspects of the problem.

## Librax: A logical choice for patients with IBS

Logical, because the antispasmodic actions of the Quarzan® (clidinium bromide/Roche) component of Librax can help to relieve the distressing abdominal symptoms associated with IBS.\* Logical, because the antianxiety actions of the Librium® (chlordiazepoxide HCl/Roche) component can help to reduce the excessive anxiety that can contribute to IBS flare-ups.

**References:** 1. Sullivan MA, Cohen S, Snape WJ. *N Engl J Med* 298:878-883, Apr 20, 1978  
2. Snape WJ et al. *Gastroenterology* 72, 383-387, Mar 1977.

Specify **Librax**®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

Antianxiety/Antisecretory/Antispasmodic

\*Librax has been evaluated as possibly effective for this indication. Please see summary of prescribing information on facing page.

ROCHE®



# for Knotts in the night

Prescribe new formula

# Quinamm<sup>\*</sup>

(quinine sulfate tablets)

each tablet contains quinine sulfate 260 mg



## Specific therapy for painful night leg cramps

## Merrell Dow

\*Trademark of MERRELL-NATIONAL LABORATORIES Inc.,  
Cayey, Puerto Rico 00633

Nocturnal recumbency leg muscle cramping is frequently an unwelcome bedfellow for many patients—especially those with arthritis, diabetes, or peripheral vascular disease... consider Quinamm... simple, convenient dosage—usually just one tablet at bedtime... can provide restful, welcome sleep without night leg cramps.

### Quinamm<sup>™</sup>

(quinine sulfate tablets)

CAUTION Federal law prohibits dispensing without prescription

#### BRIEF SUMMARY

##### INDICATIONS AND USAGE

For the prevention and treatment of nocturnal recumbency leg muscle cramps

##### CONTRAINDICATIONS

Quinamm may cause fetal harm when administered to a pregnant woman. Congenital malformations in the human have been reported with the use of quinine, primarily with large doses (up to 30 g) for attempted abortion. In about half of these reports the malformation was deafness related to auditory nerve hypoplasia. Among the other abnormalities reported were limb anomalies, visceral defects, and visual changes. In animal tests, teratogenic effects were found in rabbits and guinea pigs and were absent in mice, rats, dogs, and monkeys. Quinamm is contraindicated in women who are or may become pregnant. If this drug is used during pregnancy or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus. Because of the quinine content, Quinamm is contraindicated in patients with known quinine hypersensitivity and in patients with glucose 6-phosphate dehydrogenase (G-6-PD) deficiency.

Since thrombocytopenic purpura may follow the administration of quinine in highly sensitive patients, a history of this occurrence associated with previous quinine ingestion contraindicates its further use. Recovery usually occurs following withdrawal of the medication and appropriate therapy.

This drug should not be used in patients with tinnitus or optic neuritis or in patients with a history of blackwater fever.

##### WARNINGS

Repeated doses or overdosage of quinine in some individuals may precipitate a cluster of symptoms referred to as cinchonism. Such symptoms, in the mildest form, include ringing in the ears, headache, nausea, and slightly disturbed vision, however, when medication is continued or after large single doses, symptoms also involve the gastrointestinal tract, the nervous and cardiovascular systems, and the skin.

Hemolysis (with the potential for hemolytic anemia) has been associated with a G-6-PD deficiency in patients taking quinine. Quinamm should be stopped immediately if evidence of hemolysis appears.

If symptoms occur, drug should be discontinued and supportive measures instituted. In case of overdosage, see OVERDOSAGE section of prescribing information.

##### PRECAUTIONS

###### General

Quinamm should be discontinued if there is any evidence of hypersensitivity (See CONTRAINDICATIONS.) Cutaneous flushing, pruritus, skin rashes, fever, gastric distress, dyspnea, ringing in the ears, and visual impairment are the usual expressions of hypersensitivity, particularly if only small doses of quinine

have been taken. Extreme flushing of the skin accompanied by intense generalized pruritus is the most common form. Hemoglobinuria and asthma from quinine are rare types of idiosyncrasy.

In patients with atrial fibrillation, the administration of quinine requires the same precautions as those for quinidine. (See Drug Interactions.)

###### Drug Interactions

Increased plasma levels of digoxin and digitoxin have been demonstrated in individuals after concomitant quinine administration. Because of possible similar effects from use of quinine, it is recommended that plasma levels for digoxin and digitoxin be determined for those individuals taking these drugs and Quinamm concomitantly.

Concurrent use of aluminum-containing antacids may delay or decrease absorption of quinine.

Cinchona alkaloids, including quinine, have the potential to depress the hepatic enzyme system that synthesizes the vitamin K-dependent factors. The resulting hypoprothrombinemic effect may enhance the action of warfarin and other oral anticoagulants.

The effects of neuromuscular blocking agents (particularly pancuronium, succinylcholine, and tubocurarine) may be potentiated with quinine and result in respiratory difficulties.

Urinary alkalinizers (such as acetazolamide and sodium bicarbonate) may increase quinine blood levels with potential for toxicity.

###### Drug Laboratory Interactions

Quinine may produce an elevated value for urinary 17-ketogenic steroids when the Zimmerman method is used.

###### Carcinogenesis, Mutagenesis, Impairment of Fertility

A study of quinine sulfate administered in drinking water (0.1%) to rats for periods up to 20 months showed no evidence of neoplastic changes.

Mutagen studies of quinine (dihydrochloride) in male and female mice gave negative results by the micronucleus test. Intraperitoneal injections (0.5 mM/kg) were given twice, 24 hours apart. Direct *Salmonella typhimurium* tests were negative, when mammalian liver homogenate was added, positive results were found.

No information relating to the effect of quinine upon fertility in animal or in man has been found.

###### Pregnancy

Category X. See CONTRAINDICATIONS.

###### Nonteratogenic Effects

Because quinine crosses the placenta in humans, the potential for fetal effects is present. Stillbirths in mothers taking quinine have been reported in which no obvious cause for the fetal deaths was shown. Quinine in toxic amounts has been associated with abortion. Whether this action is always due to direct effect on the uterus is questionable.

###### Nursing Mothers

Caution should be exercised when Quinamm is given to nursing women because quinine is excreted in breast milk (in small amounts).

##### ADVERSE REACTIONS

The following adverse reactions have been reported with Quinamm in therapeutic or excessive dosage. (Individual or multiple symptoms may represent cinchonism or hypersensitivity.)

**Hematologic:** acute hemolysis, thrombocytopenic purpura, agranulocytosis, hypoprothrombinemia.

**CNS:** visual disturbances, including blurred vision with scotomata, photophobia, diplopia, diminished visual fields, and disturbed color vision; tinnitus, deafness, and vertigo; headache, nausea, vomiting, fever, apprehension, restlessness, confusion, and syncope.

**Dermatologic/allergic:** cutaneous rashes (urticarial, the most frequent type of allergic reaction, papular or scarlatiniform), pruritus, flushing of the skin, sweating, occasional edema of the face.

**Respiratory:** asthmatic symptoms.

**Cardiovascular:** anginal symptoms.

**Gastrointestinal:** nausea and vomiting (may be CNS-related), epigastric pain.

##### DRUG ABUSE AND DEPENDENCE

Tolerance, abuse, or dependence with Quinamm has not been reported.

##### OVERDOSAGE

See prescribing information for a discussion on symptoms and treatment of overdose.

##### DOSEAGE AND ADMINISTRATION

1 tablet upon retiring. If needed, 2 tablets may be taken nightly—1 following the evening meal and 1 upon retiring.

After several consecutive nights in which recumbency leg cramps do not occur, Quinamm may be discontinued in order to determine whether continued therapy is needed.

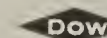
Product Information as of October, 1980

Licensor of Merrell<sup>®</sup>

MERRELL NATIONAL LABORATORIES Inc.  
Cayey, Puerto Rico 00633

Direct Medical Inquiries to

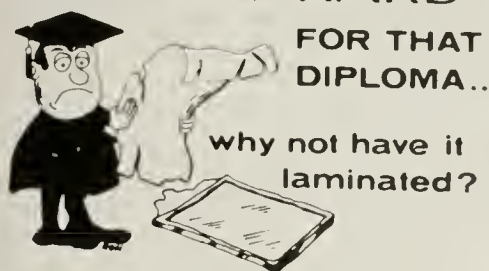
## Merrell



MERRELL DOW PHARMACEUTICALS INC.  
Subsidiary of The Dow Chemical Company  
Cincinnati, OH 45215, U.S.A.

1-8137 (Y437C)MNQ-699

# YOU WORKED HARD



FOR THAT  
DIPLOMA..

why not have it  
laminated?

it will last a lifetime....

## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.  
7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338

## PROTECT YOUR SURVIVORS

*How long has it been since you reviewed your will? Wills should be updated periodically to make certain they continue to anticipate the needs and concerns of your family. Although an attorney's expertise is required in writing or reviewing a will, there are other plans and processes that need to be initiated by the physician and his family. To help you set your affairs in order, the Arizona Medical Association and the Auxiliary have prepared a booklet that deals with many of the legal, financial, and emotional problems that all too often accompany death. To order your copy, phone or write the ArMA office and ask for*

*"PHYSICIAN'S SURVIVORS  
INFORMATION"  
pamphlet.*

810 W. Bethany Home Road  
Phoenix, AZ 85013  
Phones: 246-8901

Tucson members ask operator for  
Enterprise 265

# How to establish your practice...

# painlessly.

At National Medical Enterprises, we've had a lot of experience in establishing and building a practice.

We can offer you a choice of over 60 well equipped acute care hospitals coast to coast. We can offer you selected financial assistance. We can offer you professional management consulting.

We know what you want and how to get it for you.

So if you're a Primary Care Physician interested in a partnership, group or a solo practice, contact NME today.

We'll help you establish your practice...painlessly.

For further information, contact:  
Raymond C. Prulitt, Director Physician Relations  
National Medical Enterprises  
11620 Wilshire Blvd., Los Angeles, California 90025.  
Call Toll-Free 800-421-7470  
or collect (213) 479-5526.

**NATIONAL MEDICAL  
ENTERPRISES, INC.**



"The Total Health Care Company."  
An Equal Opportunity Employer M/F



# WE PRINT WITH PRIDE



**THE ARIZONA MEDICAL ASSOCIATION**

*Offers*

**SUBSTANTIAL SAVINGS TO MEMBERS**

Call or Write "Press" Preston  
Printing Department  
810 West Bethany Home Road  
Phoenix, Arizona 85013

*Phoenix Members*  
**Telephone 246-8901**

*Tucson Members*  
**Ask Operator for Enterprise 265**

*All Other Members*  
**Call Collect 246-8901**

AMERICAN LUNG ASSOCIATION

✚<sup>®</sup> 1981



**Merry Christmas**

Christmas Seals are considered an American tradition. They can be placed on cards, seal letters, packages and presents. Anyone who needs more Christmas Seals should telephone the Arizona Lung Association, (602) 258-7505, or write 1239 East McDowell Road, Phoenix, Arizona 85006



# Classified



**THEY HAVE A  
FINE  
REPUTATION**

*"Yes, they are a reputable billing service"*

**House of Mailings  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708**

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**  
At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People  
70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

*Tired of all that money going out?*

**For a competitive Quote on:**

- Physicians & Surgeons Malpractice •
- Office Package •
- Automobile •
- Homeowners •



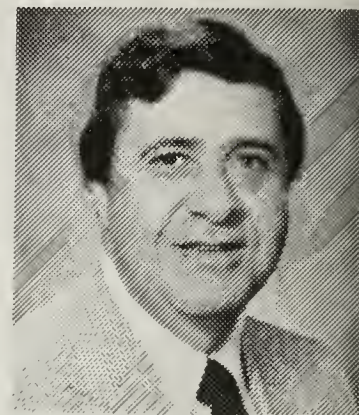
**PHOENIX-AMERICAN INSURANCE AGENCY**  
1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*

## Louis Jacob

General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



**We Want You With Us**



**L. Louis Jacob Agency**

Complete Insurance Services  
Call Us for an Auto Quote

## SELLARD ENGRAVING

Calligraphy Award Plaques  
Engraving Gifts  
Jewelry

*One Day Service*

**Town and Country Shopping Center  
2051-A East Camelback Road  
Phoenix, Arizona 85016  
Telephone: (602) 956-4270**

## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 611 North 7th Street, Phoenix, AZ 85014.

### TWO ORTHOPEDIC SURGEONS NEEDED

To join a 32 member, multi-specialty medical staff. Established referral base of orthopedics. Scenic desert community on Lake Havasu, Arizona with abundant outdoor recreation. Population 16,000 with service area of 40-50,000. 88 bed acute-care hospital ideal for orthopedic practice. If interested, write or contact: Walter Sosey, M.D., Chief of Staff or James Urbatchka, Administrator, Havasu Regional Hospital, Lake Havasu City, Arizona 86403. Telephone: (602) 855-8185.

## THE ENTERTAINER



**7814 N. Central**

**\$395,000**

This totally renovated, splendidly decorated home on prestigious Central Avenue in the heart of Phoenix captures the essence of Arizona life built around patio, pool and entertainment—secluded by 15 luscious grapefruit trees and mature greenery on a large, private lot.

Features begin with plush carpeting and decorator wallpaper throughout, sunken living room overlooking the pool, and formal dining that accommodates 16 guests.

The kitchen has been tastefully redone, a cozy breakfast nook is for casual daydream mornings.

This 4100 sq. ft. home luxuriously accommodates 4 bedrooms all with arcadia doors opening poolside. The master suite features 2 dressing rooms and sunken jacuzzi in the deluxe master bath.

Lavish wet bar and a Casablanca fan set the mood in the family room.

With circular drive, ample parking, outdoor lighting and 22 x 44 pool, this home boasts entertainment living—simple but sophisticated.

**David Henn**

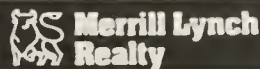
**Home—265-6145**

**Office — 997-7471**

**Starla Mans**

**Home—956-8652**

**Office — 997-7471**



**Tom Fannin**

## ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

## MEMORIAL MEDICAL OFFICE BUILDING

This is not just another office for rent. The Memorial Medical Office Building is owned and operated by a general partnership of physicians who recognized the potential for success. Physicians in the building, representing various medical and surgical specialties, are establishing rapidly growing practices while enjoying the convenience of practice in a 44,600 square foot full service building. The building houses a retail pharmacy, laboratory and radiology departments—and is located on land immediately adjacent to the newly expanded & modern facilities of Phoenix Memorial Hospital. The Maricopa freeway provides easy access to the attractive four story building. For more information, contact: Bruce A. Mallin, M.D., (602) 257-8202 or Leon D. Zeitzer, M.D. (602) 956-1250.

## UNIVERSITY TRAINED GENERAL SURGEON

Currently doing a fellowship in Vascular Surgery seeks practice opportunities in General/Vascular Surgery. Please reply to: Ruben J. Delgado, M.D., Spring Ridge M-26, Whitehall, Pennsylvania 18052.

## REAL ESTATE

### MEDICAL SUITES FOR LEASE

Medical office space available for lease, with suites ranging from 718-1648 square feet, in the North Phoenix Medical Center, 9200 North Third Street, adjacent to John C. Lincoln Hospital and Trauma Center. Reasonable rental rates are offered with flexible lease terms and leasehold improvement allowance. For further information, contact Harold Kennedy, Association Administrator, John C. Lincoln Hospital and Trauma Center, 9211 North Second Street, Phoenix, Arizona 85020, or call (602) 943-2381, Ext. 1201.

### OSBORN MEDICAL CENTER

444 West Osborn Road. A high quality medical building in an excellent Central Corridor location near St. Joseph Hospital has full service office suites available for 1-4 doctor practices at competitive rates. Attached parking garage for doctors and staff, radiology and retail pharmacy on premises. For details call H. Higgins, Manager, (602) 277-2993.

### FLAGSTAFF MEDICAL BUILDING FOR LEASE

Located next to the Flagstaff Hospital and Medical Center on the corner of Forest and Beaver Streets. A pharmacy, laboratory and radiology are in the complex plus, parking easily accessible to either your office or the hospital makes the Flagstaff Medical Building the desired choice for the largest number of practicing physicians in any medical building located in Northern Arizona. Your customized medical office suite (ranging from 800 to 2000 sq. ft.) is now available at a most reasonable cost. Please contact: Bruce O. Utterback, C.P.H., Flagstaff Medical Building, 1355 N. Beaver Street, Flagstaff, Arizona 86001. (602) 774-4416.

### OFFICE SPACE FOR LEASE SCOTTSDALE

Two suites available, approximately 1,000 sq. ft. each. \$10.50 per sq. ft. One block west of Scottsdale Road. For leasing information call: Marilyn Truitt, Chusman & Wakefield (602) 957-0111.

### SATELLITE OFFICE

Bell Road location in northwest Phoenix. Who will be serving your patients from the far northwest area three years from now. Should your practice consider adding an additional office in this excellent growth area. Write Westbell Partnership, 13821 North 35th Drive, Phoenix, Arizona 85023, or phone: (602) 269-7541.

### BEAUTIFUL CONDOMINIUM Condominios Pilar San Carlos Bay, Mexico For Rent

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

Continued on next page



### BELL ROAD LOCATION

Fast growing northwest area, frontage on Bell Road which is major arterial for entire north side of Phoenix. New 31,000 sq. ft. Professional Building with fountains, courtyard, and garden atmosphere. Four miles from Sun City, yet located among several large high technology employers (Sperry, Honeywell, Digital Systems, General Telephone and ITT). Many young growing families in the area. Convenient to new hospital facility at 55th Avenue and Thunderbird as well as Greenway and Bell Road Emergicenters. An opportunity to get into a really first class location in an outstanding area. Write Westbell Partnership, 13821 North 35th Drive, Phoenix, Arizona 85023, or phone: (602) 269-7541..

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### PINETOP MOUNTAIN CABIN - FOR RENT

White Mountain summer home. Ideal now for Fall activities in the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

### ATTENTION PROFESSIONALS

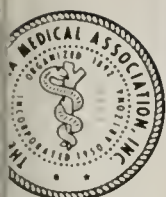
Why rent when you can own? Are you renting your telephone system from Mountain Bell? If so, you are over-paying. Why not let the professional at Interstate Telecommunications, Inc. compare your Bell system against our systems. We can show you a cost effective, state-of-the-art, telephone system for a fraction of the cost; because with the money you normally pay Bell, you will be paying on your own system. Give us a call today! We've got your number. Interstate Telecommunications, Inc. 9830 N. 32nd Street, Suite A-105 Phoenix, Arizona 85028. Telephone (602) 992-4518.

### FOR SALE

Radiometer blood gas analysis system BMS3 - MK2 model with PHM 72 digital acid-base analyzer. For details call Pat at (602) 247-7725.

## INDEX TO ADVERTISERS

|                                             |                    |                                    |                           |
|---------------------------------------------|--------------------|------------------------------------|---------------------------|
| ACEP Symposium .....                        | 861                | Lightcom, Inc. ....                | 827                       |
| Arizona Laminating .....                    | 873                | John C. Lincoln Hospital .....     | 859                       |
| Ben-Ora Imaging Ltd. ....                   | 868                | Medical Bookstore .....            | 818                       |
| Blue Cross/Blue Shield .....                | 820                | Merrell Dow Pharmaceuticals        |                           |
| Boots Pharmaceuticals                       |                    | Quinamm .....                      | 872                       |
| Ru-Tuss .....                               | 821, 822, 823, 824 | Merrell Lynch/Tom Fannin .....     | 877                       |
| Rufen .....                                 | 849, 850, 851, 852 | Mica Insurance Co. ....            | 866                       |
| Burroughs Wellcome                          |                    | National Medical Enterprises ..... | 873                       |
| Zyloprim .....                              | 819                | The Northern Trust Co. ....        | 825                       |
| Neosporin Topicals .....                    | 863                | Phoenix/American Insurance .....   | 876                       |
| Camelback Hospital .....                    | 826                | Roche Labs                         |                           |
| Classified Ads .....                        | 876, 877, 878      | Valium .....                       | Second Cover, 813, 814    |
| Computed Neurological Scanning Center ..... | 818                | Librax .....                       | 870, 871                  |
| Doctors Central Directory .....             | 876                | Limbital .....                     | Third Cover, Fourth Cover |
| Eli Lilly & Co.                             |                    | Roswell Bookbinding .....          | 818                       |
| Keflex .....                                | 867                | Sellard Engraving .....            | 876                       |
| The Eye Foundation .....                    | 860                | Danny T. Sievert                   |                           |
| Health Agencies of the West .....           | 815                | Insurance .....                    | 876                       |
| House of Mailings .....                     | 876                | Smith Kline and French             |                           |
| Louis Jacobs .....                          | 876                | Dyazide .....                      | 869                       |
| Janssen Pharmaceutica                       |                    | Wickenberg Inn .....               | 814                       |
| Nizoral .....                               | 816, 817           |                                    |                           |



# ARIZONA MEDICINE

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

ISSN 0004-1556)

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

INDEX ISSUE

## SEMINARS IN CONTINUING EDUCATION

### CARDIOLOGY

- Primary Pulmonary Hypertension  
A Review .....898  
*Rajendra Savajiyani, M.D., et al.*

### DERMATOLOGY

- Kaposi's Sarcoma Presenting in the  
Homosexual Man  
A New and Striking Phenomenon! ..... 902  
*Steven P. Borkovic, M.D., et al.*

### GASTROENTEROLOGY & LIVER DISEASE

- Campylobacter Enterocolitis .....904  
*Michdael S. Altman, M.D.*

### HAEMATOLOGICAL GENETICS

- Contemporary Management of Leukemia:  
Cytogenetic Diagnosis and Monitoring of  
Acute Leukemia and Preleukemia .....906  
*Avery A. Sandberg, M.D., et al.*

### ONCOLOGY

- Beta<sub>2</sub>-Microglobulin:  
A Potentially Useful Marker for  
Hematologic Malignancies .....912  
*Harinder Garewal, M.D., Ph.D., et al.*

### PSYCHIATRIC DISORDERS

- Threshold of Pain ..... 914  
*William B. McGrath, M.D.*

### RADIOLOGY

- Case of the Month No. 53 ..... 915  
*Samuel L. Cohen, M.D., et al.*

### PLASTIC SURGERY

- Cardiac Transplantation,  
The Arizona Experience..... 917

## SPECIAL ARTICLE

- The Medical Society Media Committee:  
A Model First Year.....921  
*Ronald P. Spark, M.D.*

## EDITORIAL

- The Computer and Imaging ..... 922  
*M. Paul Capp, M.D., et al.*

## CORRESPONDENCE

..... 923

## MEDICAL HISTORY

- Extracts from the Publications of the  
Arizona Medical Association .....925  
*John W. Kennedy, M.D.*

## ARMA REPORTS

..... 931

## FUTURE MEETINGS

.....933

XVIII, NO. 12

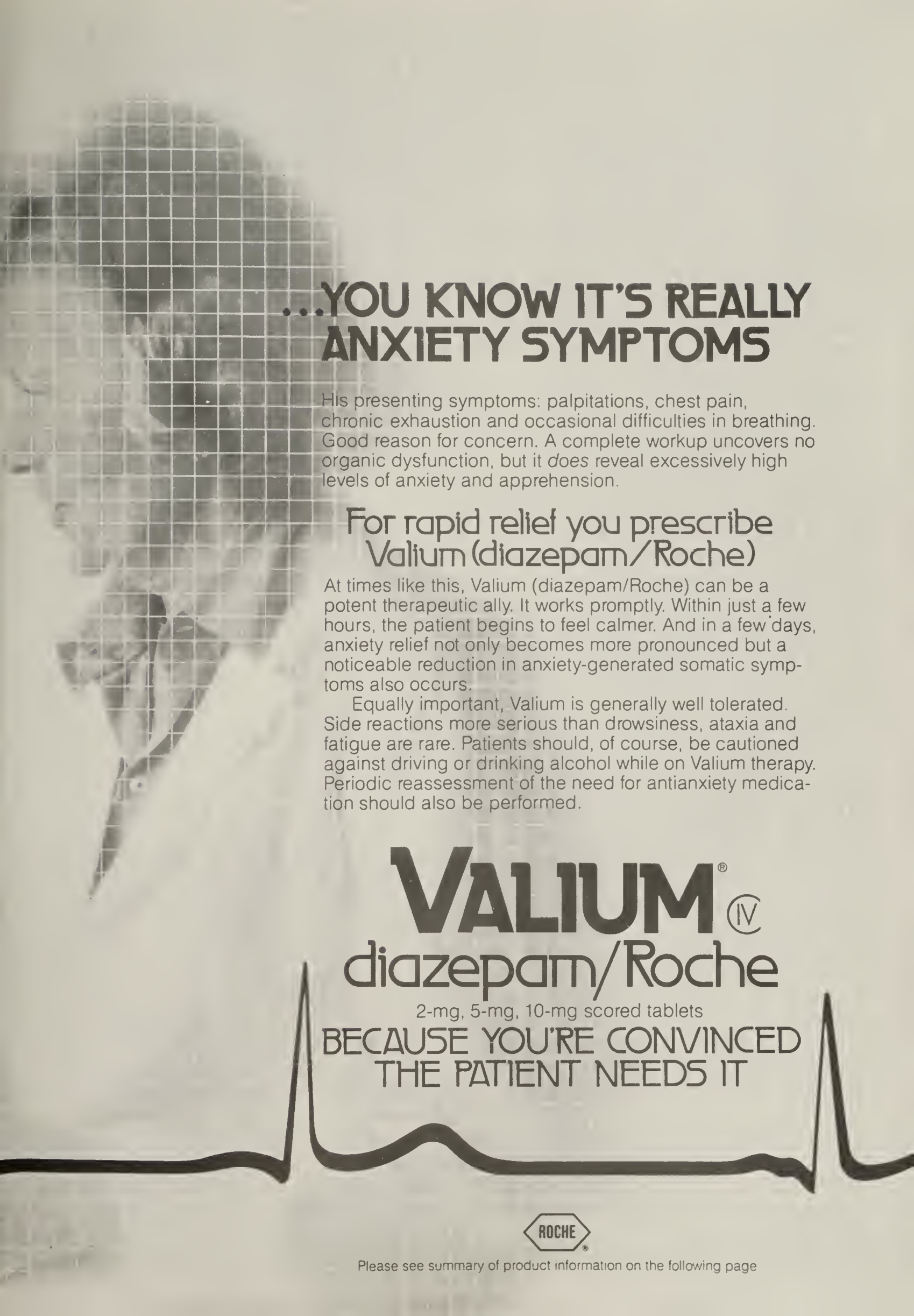
THE LIBRARY, ACQUISITIONS DIV.  
U. OF CALIF., S.F.  
SAN FRANCISCO, CA 94143

LIBRARY  
U.C. SAN FRANCISCO



**THE PATIENT THINKS  
HE HAS HEART TROUBLE...**





## ...YOU KNOW IT'S REALLY ANXIETY SYMPTOMS

His presenting symptoms: palpitations, chest pain, chronic exhaustion and occasional difficulties in breathing. Good reason for concern. A complete workup uncovers no organic dysfunction, but it does reveal excessively high levels of anxiety and apprehension.

### For rapid relief you prescribe Valium (diazepam/Roche)

At times like this, Valium (diazepam/Roche) can be a potent therapeutic ally. It works promptly. Within just a few hours, the patient begins to feel calmer. And in a few days, anxiety relief not only becomes more pronounced but a noticeable reduction in anxiety-generated somatic symptoms also occurs.

Equally important, Valium is generally well tolerated. Side reactions more serious than drowsiness, ataxia and fatigue are rare. Patients should, of course, be cautioned against driving or drinking alcohol while on Valium therapy. Periodic reassessment of the need for antianxiety medication should also be performed.

# VALIUM<sup>®</sup> <sup>IV</sup>

## diazepam/Roche

2-mg, 5-mg, 10-mg scored tablets

BECAUSE YOU'RE CONVINCED  
THE PATIENT NEEDS IT



Please see summary of product information on the following page



# VALIUM® (diazepam/Roche)

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy). The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma. may be used in patients with open angle glaucoma who are receiving appropriate therapy.

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication, abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d., adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

**How Supplied:** For oral administration, Valium scored tablets—2 mg, white; 5 mg, yellow; 10 mg, blue—bottles of 100\* and 500,\* Prescription Paks of 50, available in trays of 10 \* Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25,† and in boxes containing 10 strips of 10.†

\*Supplied by Roche Products Inc., Manati, Puerto Rico 00701

†Supplied by Roche Laboratories, Division of Hoffmann-La Roche Inc., Nutley, New Jersey 07110

| U.S. POSTAL SERVICE<br>STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION<br>(Required by 39 U.S.C. 3685)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                           |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------|
| 1. TITLE OF PUBLICATION<br>Arizona Medicine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2. PUBLICATION NO.<br>0 0 0 4 1 5 5 6     | 3. DATE OF FILING<br>10/1/81            |
| 4. FREQUENCY OF ISSUE<br>Monthly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5. NO. OF ISSUES PUBLISHED ANNUALLY<br>12 | 6. ANNUAL SUBSCRIPTION PRICE<br>\$20.00 |
| 7. LOCATION OF KNOWN OFFICE OF PUBLICATION (Street, City, County, State and ZIP Code) (Not printers)<br>810 West Bethany Home Rd., Phoenix, Maricopa, Arizona 85013                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |                                         |
| 8. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not printers)<br>810 West Bethany Home Rd., Phoenix, Arizona 85013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                           |                                         |
| 9. NAMES AND COMPLETE ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                           |                                         |
| PUBLISHER (Name and Address)<br>Arizona Medical Association, Inc., 810 W. Bethany Home Rd., Phoenix, AZ 85013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                         |
| EDITOR (Name and Address)<br>Marshall B. Block, M.D., 810 W. Bethany Home Rd., Phoenix, AZ 85013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |                                         |
| MANAGING EDITOR (Name and Address)<br>Bruce E. Robinson, 810 W. Bethany Home Rd., Phoenix, AZ 85013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |                                         |
| 10. OWNER (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.)                                                                                   |                                           |                                         |
| NAME ADDRESS<br>Arizona Medical Assoc., Inc. 810 W. Bethany Home Rd., Phoenix, AZ 85013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                                         |
| No stockholders -- this is a non-profit organization                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                           |                                         |
| 11. KNOWN BONDHOLDERS, MORTGAGEES AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES (If there are none, so state)                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                           |                                         |
| NAME ADDRESS<br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                           |                                         |
| 12. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES (Section 112.122, PSN)<br>The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes (Check one)<br><input checked="" type="checkbox"/> HAVE NOT CHANGED DURING PRECEDING 12 MONTHS <input type="checkbox"/> HAVE CHANGED DURING PRECEDING 12 MONTHS (If changed, publisher must submit explanation of change with this statement.)                                                                                                                                                   |                                           |                                         |
| 13. EXTENT AND NATURE OF CIRCULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                           |                                         |
| A. TOTAL NO. COPIES PRINTED (Net Press Run)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                           | 3047                                    |
| B. PAID CIRCULATION<br>1. SALES THROUGH DEALERS AND CARRIERS STREET VENDORS AND COUNTER SALES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                           | -0-                                     |
| 2. MAIL SUBSCRIPTIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                           | 2882                                    |
| C. TOTAL PAID CIRCULATION (Sum of B.1 and B.2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           | 2882                                    |
| D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS, SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           | 118                                     |
| E. TOTAL DISTRIBUTION (Sum of C and D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                           | 3000                                    |
| F. COPIES NOT DISTRIBUTED<br>1. OFFICE USE, LEFT OVER, UNACCOUNTED, SPOILED AFTER PRINTING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                           | 47                                      |
| 2. RETURNS FROM NEWS AGENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                           | -0-                                     |
| G. TOTAL (Sum of E, F, 1 and 2—should equal net press run shown in A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                           | 3047                                    |
| H. AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                           | 3145                                    |
| I. ACTUAL NO. COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                           | 3145                                    |
| 14. I certify that the statements made by me above are correct and complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                           |                                         |
| SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER<br><i>Marshall B. Block</i> Executive Director                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |                                         |
| 15. FOR COMPLETION BY PUBLISHERS MAILING AT THE REGULAR RATES (Section 112.121, Postal Service Manual)<br>39 U.S.C. 3626 provides in pertinent part: "No person who would have been entitled to mail matter under former section 435a of this title shall mail such matter at the rate provided under this subsection unless he files annually with the Postal Service a written request for permission to mail matter at such rate."<br>In accordance with the provisions of this statute, I hereby request permission to mail the publication named in item 1 at the phased postage rates presently authorized by 39 U.S.C. 3626. |                                           |                                         |
| SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER<br><i>Marshall B. Block</i> Executive Director                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |                                         |

PS Form 3526 (Page 1)

(See instructions on reverse)

Arizona Medicine (ISSN 0004-1556) is the official monthly publication of the Arizona Medical Association (810 W. Bethany Home Rd., Phoenix, AZ 85013) and the Medical Society of the United States and Mexico. Subscription price \$20.00 per year. \$2.00 single copy. Second-class postage paid at Phoenix, Arizona and at additional mailing offices. POSTMASTER: Send address changes to Arizona Medicine 810 W. Bethany Home Rd., Phoenix, AZ 85013.

Arizona Medicine does not hold itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

For information on the preparation of articles write the Managing Editor, 810 W. Bethany Home Road, Phoenix, AZ 85013. (602) 246-8901.



ROCHE PRODUCTS INC.  
Manati, Puerto Rico 00701



# Our goal is to help you reach yours.

From medical school through retirement, your financial needs are continually changing. And your time to look after those needs is limited.

That's why Valley Bank has Medical Banking Specialists—trained in the financial needs of medical professionals.

Talk to us about credit and our many other services. They're outlined in our new

brochure: "Financial Services for Medical Professionals."

For more information about these services, call Jay Crawford, Medical Banking Director in Phoenix, at 261-5045. In Mesa, call Maria Evans, Medical Banking Specialist, at 261-1890. And in Tucson, call Brenda Koedyker, Assistant Vice President, at 792-7531.

## We go out of our way for you. Valley National Bank



Member FDIC Equal Opportunity Lender



New from Janssen Pharmaceutica:  
Introducing a promising new approach  
to coccidioidomycosis therapy

# NIZORAL<sup>TM</sup>

TABLETS

## (ketoconazole)

**New:**

**the first and only orally effective,  
broad-spectrum antifungal agent.**

NIZORAL (ketoconazole) is clinically effective against the major yeast and fungal pathogens. For *C. immitis*, the average MIC is less than 1  $\mu\text{g/ml}$ . Absorption of ketoconazole is rapid; mean peak plasma levels of approximately 3.5  $\mu\text{g/ml}$  are reached within 1-2 hours following a single 200 mg tablet. Development of resistance to NIZORAL has not yet been reported.

**Effective:**

**"...a promising new drug for  
treatment of coccidioidomycosis."<sup>1</sup>**

Clinical studies employing 200 to 400 mg NIZORAL per day have shown a combined response rate\* of 35% after 26 (median) weeks of therapy; (at this point, however, 69% of patients were still being treated). Most patients were severe and chronic cases, either failures on or intolerant to amphotericin B.<sup>2</sup> (Recommended minimum treatment is 180 days.)

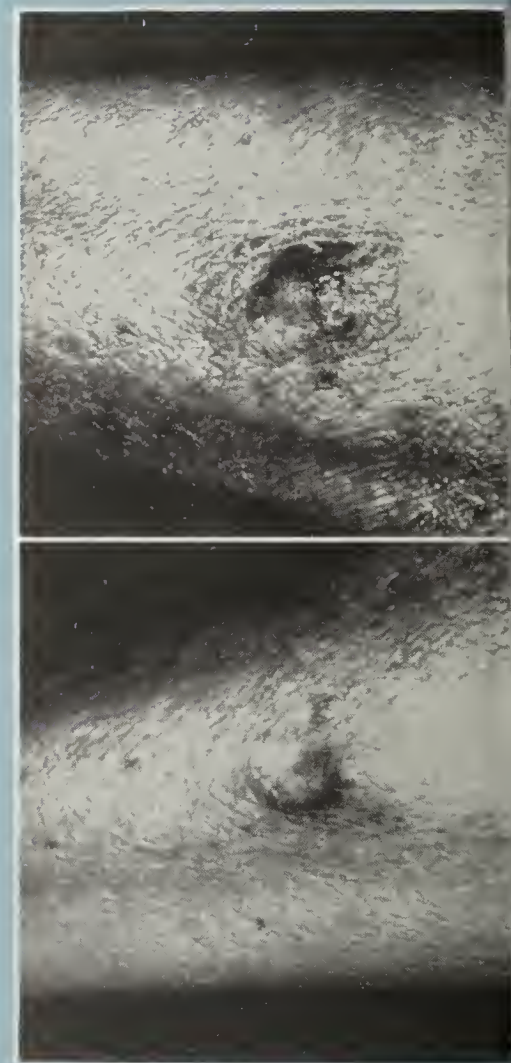
**Safe:**

**"...can be safely administered  
for prolonged periods..."<sup>3</sup>**

Freedom from long-term toxicity permits use of extended therapeutic courses of NIZORAL, when indicated, and provides an extra margin of safety in presumptive antifungal therapy. Long-term administration has revealed no organ toxicity and no consistent changes in important hematological or biochemical values. Infrequent, transient increases in serum liver enzymes have been seen. Adverse reactions were generally minor and only rarely required withdrawal of therapy.

**Convenient:**

**once-a-day oral regimen  
fosters compliance... facilitates use  
both in and out of the hospital.**

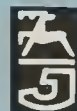


**Top:** Cutaneous lesion, disseminated coccidioidomycosis, before therapy.

**Bottom:** Lesion markedly resolved after oral NIZORAL therapy; photographed at 18 months.

\*Includes cases in remission or markedly improved (no evidence of active disease); both mycological and clinical criteria were considered in measuring overall response.

For further information on NIZORAL write: Professional Services,  
Janssen Pharmaceutica Inc., 501 George St., New Brunswick, N.J. 08903.  
See the facing page for Complete Prescribing Information.



NEW orally effective

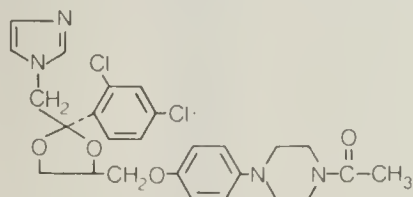
# NIZORAL<sup>TM</sup>

(ketoconazole) TABLETS

One tablet a day provides  
broad-spectrum antimycotic efficacy

## DESCRIPTION

NIZORAL<sup>TM</sup> (ketoconazole) is a synthetic broad-spectrum antifungal agent available in scored white tablets, each containing 200 mg ketoconazole. Ketoconazole is *cis*-1-acetyl-4-[4-[[2-(2,4-dichlorophenyl)-2-(1*H*-imidazol-1-methyl)-1,3-dioxolan-4-yl]methoxy]phenyl]piperazine and has the following structural formula



NIZORAL<sup>TM</sup> is a white to slightly beige, odorless powder, soluble in acids, with a molecular weight of 531.44

## CLINICAL PHARMACOLOGY

Mean peak plasma levels of approximately 3.5 µg/ml are reached within 1 to 2 hours, following oral administration of a single 200 mg dose taken with a meal. Subsequent plasma elimination is biphasic with a half-life of 2 hours during the first 10 hours and 8 hours thereafter. Following absorption from the gastrointestinal tract, NIZORAL<sup>TM</sup> is converted into several inactive metabolites. The major identified metabolic pathways are oxidation and degradation of the imidazole and piperazine rings, oxidative  $\alpha$ -dealkylation and aromatic hydroxylation. About 13% of the dose is excreted in the urine, of which 2 to 4% unchanged drug. The major route of excretion is through the bile into the intestinal tract. *In vitro*, the plasma protein binding is about 99%, mainly to the albumin fraction. Only a negligible proportion of NIZORAL<sup>TM</sup> reaches the cerebrospinal fluid. NIZORAL<sup>TM</sup> is a weak dibasic agent and thus requires acidity for dissolution and absorption.

NIZORAL<sup>TM</sup> is active against clinical infections with *Candida* spp., *Coccidioides immitis*, *Histoplasma capsulatum*, *Paracoccidioides brasiliensis*, and *Pneumocystis carinii* spp. Development of resistance to NIZORAL<sup>TM</sup> has not yet been reported.

The following preclinical data are available, however, their clinical significance is unknown. NIZORAL<sup>TM</sup> is active *in vitro* against dermatophytes, dimorphic fungi, eumycetes, yeasts, actinomycetes, phycomycetes and various other fungi. In animal models, activity has been demonstrated against *Candida* spp., dermatophytes (*Trichophyton* spp., *Microsporum* spp., *Epidermophyton floccosum*), *Blastomyces dermatitidis*, *Histoplasma capsulatum*, *Malassezia furfur*, *Coccidioides immitis*, and *Cryptococcus neoformans*.

**Mode of Action:** *In vitro* studies suggest that NIZORAL<sup>TM</sup> impairs the synthesis of ergosterol, which is a vital component of fungal cell membranes. Tests in animals suggest this mechanism is not important in mammalian cells.

## INDICATIONS AND USAGE

NIZORAL<sup>TM</sup> is indicated for the treatment of the following fungal infections: candidiasis, chronic mucocutaneous candidiasis, oral thrush, candiduria, coccidioidomycosis, histoplasmosis, chromomycosis, and paracoccidioidomycosis. NIZORAL<sup>TM</sup> should not be used for fungal meningitis because it penetrates poorly into the cerebral-spinal fluid.

For the initial diagnosis, the infective organism should be identified, however, therapy may be initiated prior to obtaining laboratory results.

## CONTRAINDICATIONS

NIZORAL<sup>TM</sup> is contraindicated in patients who have shown hypersensitivity to the drug.

## WARNINGS

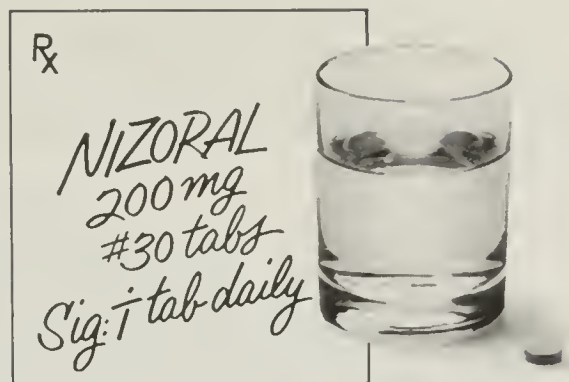
In female rats treated three to six months with ketoconazole at dose levels of 0 mg/kg and higher, increased fragility of long bones, in some cases leading to fracture, was seen. The maximum "no-effect" dose level in these studies was 20 mg/kg (2.5 times the maximum recommended human dose). The mechanism responsible for this phenomenon is obscure. Limited studies in dogs failed to demonstrate such an effect on the metacarpals and ribs.

## PRECAUTIONS

**General:** In four subjects with drug-induced achlorhydria, a marked reduction in NIZORAL<sup>TM</sup> absorption was observed. NIZORAL<sup>TM</sup> requires acidity for dissolution. If concomitant antacids, anticholinergics, and  $H_2$ -blockers are needed, they should be given at least two hours after NIZORAL<sup>TM</sup> administration. In cases of achlorhydria, the patients should be instructed to dissolve each tablet in 4 ml aqueous solution of 0.2 N HCl. For ingesting the resulting mixture, they should use a glass or plastic straw so as to avoid contact with the teeth. This administration should be followed with a cup of tap water.

**Drug Interactions:** There is no evidence for clinically significant interaction with oral anticoagulant or oral hypoglycemic agents.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:** The dominant thal mutation test in male and female mice revealed that single oral doses of NIZORAL<sup>TM</sup> as high as 80 mg/kg produced no mutation in any stage of germ cell development. The Ames *Salmonella* microsomal activator assay was also negative.



**Pregnancy:** Teratogenic effects: *Pregnancy Category C.* NIZORAL<sup>TM</sup> has been shown to be teratogenic (syndactylia and oligodactylia) in the rat when given in the diet at 80 mg/kg/day (10 times the maximum recommended human dose). However, these effects may be related to maternal toxicity, evidence of which also was seen at this and higher dose levels.

**Nonteratogenic effects:** NIZORAL<sup>TM</sup> has also been found to be embryotoxic in the rat when given in the diet at doses higher than 80 mg/kg during the first trimester of gestation.

In addition, dystocia (difficult labor) was noted in rats administered NIZORAL<sup>TM</sup> during the third trimester of gestation. This occurred when NIZORAL<sup>TM</sup> was administered at doses higher than 10 mg/kg (higher than 1.25 times the maximum human dose).

It is likely that both the malformations and the embryotoxicity resulting from the administration of NIZORAL<sup>TM</sup> during gestation are a reflection of the particular sensitivity of the female rat to this drug. For example, the oral LD<sub>50</sub> of NIZORAL<sup>TM</sup> given by gavage to the female rat is 166 mg/kg, whereas in the male rat the oral LD<sub>50</sub> is 287 mg/kg.

**Nursing Mothers:** Since NIZORAL<sup>TM</sup> is probably excreted in the milk, mothers who are under NIZORAL<sup>TM</sup> treatment should not breast-feed the child.

**Pediatric Use:** Safety in children under two years of age has been documented in a limited number of cases.

## ADVERSE REACTIONS

NIZORAL<sup>TM</sup> is usually well tolerated. Most adverse reactions reported have been mild and transient and have only rarely required withdrawal of therapy.

The most frequent adverse reactions were nausea and/or vomiting, which occurred in approximately 3% of patients. Abdominal pain was reported in approximately 1.2% of patients, pruritus in approximately 1.5% of patients. The following have been reported in less than 1% of patients: headache, dizziness, somnolence, fever and chills, photophobia, and diarrhea. Infrequent, transient increases in serum liver enzymes have been seen.

## OVERDOSAGE

In the event of accidental overdosage, supportive measures, including gastric lavage with sodium bicarbonate, should be employed.

## DOSAGE AND ADMINISTRATION

**Adults:** The recommended starting dose of NIZORAL<sup>TM</sup> is a single daily administration of 200 mg (one tablet). In very serious infections or if clinical responsiveness is insufficient within the expected time, the dose of NIZORAL<sup>TM</sup> may be increased to 400 mg (two tablets) once daily.

### Children:

Children weighing 20 kg or less: 50 mg (1/4 tablet) once daily  
Children weighing 20-40 kg: 100 mg (1/2 tablet) once daily  
Children weighing over 40 kg: 200 mg (1 tablet) once daily

Generally, treatment should be continued until all clinical and laboratory tests indicate that active fungal infection has subsided. Inadequate periods of treatment may yield poor response and lead to early recurrence of clinical symptoms. Minimum treatment for candidiasis is one or two weeks. Patients with chronic mucocutaneous candidiasis usually require maintenance therapy. Minimum treatment for the other indicated systemic mycoses is six months.

## HOW SUPPLIED

NIZORAL<sup>TM</sup> is available as white, scored tablets containing 200 mg of ketoconazole debossed "JANSSEN". They are supplied in bottles of 60 tablets.

U.S. Patent Pending  
NDC 50458-220-06 (60 tablets)

May 1981

Manufactured by:  
Janssen Pharmaceutica n.v.  
B-2340 Beerse, Belgium

For:  
Janssen Pharmaceutica Inc.  
New Brunswick, New Jersey 08903 USA

## References:

1. Brass C, Gagliani JN, Campbell SC, et al: Therapy of disseminated or pulmonary coccidioidomycosis with ketoconazole. *Reviews of Infectious Diseases* 2 (4): 656-660, 1980. 2. Data on file, Janssen Pharmaceutica. 3. Graybill JR, Lundberg D, Donovan W, et al: Treatment of coccidioidomycosis with ketoconazole. Clinical and laboratory studies of 18 patients. *Reviews of Infectious Diseases* 2 (4): 661-673, 1980.

Committed to research...  
because so much remains to be done.



**JANSSEN**  
PHARMACEUTICA

Janssen Pharmaceutica Inc., 501 George St., New Brunswick, N.J. 08903



# SEASONS GREETINGS!!

To all our policyholders from  
the entire staff at MICA.

We continue to stand ready to  
serve you in 1982.

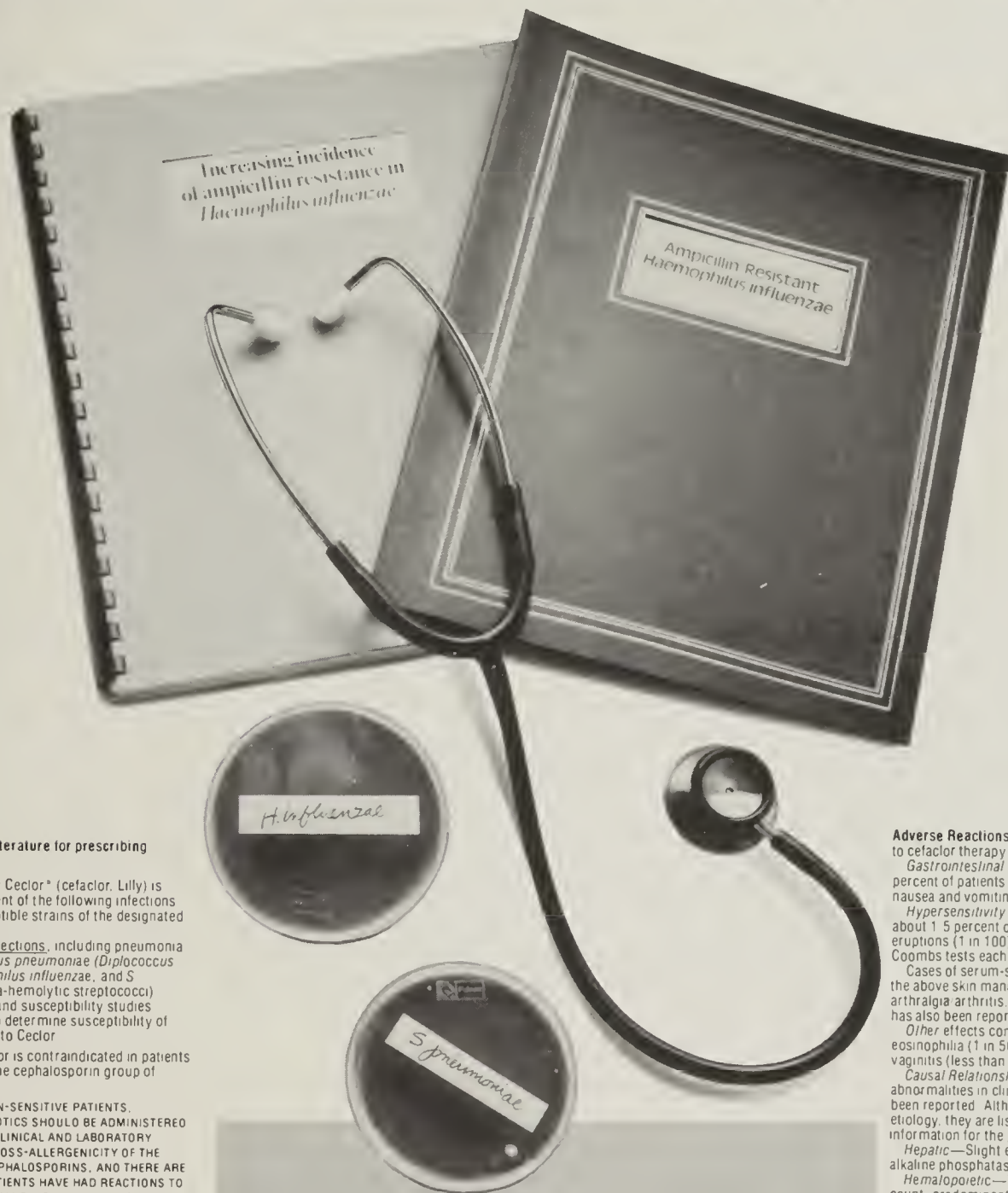
MICA - Physician owned and  
therefore managed with the  
physician in mind - Your Company.

For more facts, please call the MICA Underwriting  
Department (602) 271-4019  
or toll free (800) 352-0402

MICA MICA **MICA** MICA

MUTUAL INSURANCE COMPANY OF ARIZONA Sponsored by: Arizona Medical Association  
Arizona Osteopathic Medical Association

# An added complication... in the treatment of bacterial bronchitis\*



**Brief Summary.** Consult the package literature for prescribing information.

**Indications and Usage:** Ceclor® (cefaclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

**Lower respiratory infections,** including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Ceclor.

**Contraindication:** Ceclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

**Warnings:** IN PENICILLIN-SENSITIVE PATIENTS. CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS TO BOTH DRUG CLASSES (INCLUDING ANAPHYLAXIS AFTER PARENTERAL USE).

Antibiotics, including Ceclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

**Precautions:** If an allergic reaction to cefaclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefaclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Ceclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Ceclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinintest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

**Usage in Pregnancy—**Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

**Usage in Infancy—**Safety of this product for use in infants less than one month of age has not been established.

**Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis\*—are sensitive to treatment with Ceclor.<sup>1-6</sup>**

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Ceclor.<sup>7</sup>

## Ceclor®

### cefaclor

Pulvules®, 250 and 500 mg

**Adverse Reactions:** Adverse effects considered related to cefaclor therapy are uncommon and are listed below. Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

**Hypersensitivity reactions** have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients.

Cases of serum-sickness-like reactions, including the above skin manifestations, fever, and arthralgia/arthritis, have been reported. Anaphylaxis has also been reported.

**Other effects** considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

**Causal Relationship Uncertain—**Transient abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

**Hepatic—**Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

**Hematopoietic—**Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

**Renal—**Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[103080R]

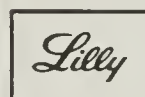
\*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

**Note:** Ceclor® (cefaclor) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

#### References

1. Antimicrob. Agents Chemother., 8:91, 1975.
2. Antimicrob. Agents Chemother., 11:470, 1977.
3. Antimicrob. Agents Chemother., 13:584, 1978.
4. Antimicrob. Agents Chemother., 12:490, 1977.
5. Current Chemotherapy (edited by W. Siegenthaler and R. Luthy), II, 880. Washington, D.C.: American Society for Microbiology, 1978.
6. Antimicrob. Agents Chemother., 13:861, 1978.
7. Data on file, Eli Lilly and Company.
8. Principles and Practice of Infectious Diseases (edited by G. L. Mandell, R. G. Douglas, Jr., and J. E. Bennett), p. 487. New York: John Wiley & Sons, 1979.



Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.  
**Eli Lilly Industries, Inc.**  
Carolina, Puerto Rico 00630



# Partnership with Arizona medicine for one quarter century!



For 25 years, Camelback Hospitals have maintained a working partnership with Arizona's medical profession in offering eminent psychiatric facilities for the care and treatment of emotionally and mentally ill patients.

## Services doctors understand & appreciate

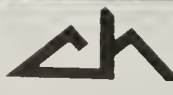
As non-profit community facilities, Camelback Hospitals offer psychiatric services unavailable at most institutions:

- Totally separate programs for adults, young adults, adolescents and older adults.
- Intensive diagnostic and short-term treatment for all age groups.
- Progressive approaches to the treatment of alcohol and drug abuse.
- A special Activity Center with art, music, dance, recreation, occupational therapy and personal effectiveness programs.
- Individual, group and family therapy with special psychodrama sessions.
- Day Treatment Program.

## A pleasant, different kind of atmosphere

Patients enjoy bright, sunny buildings, designed for psychiatric treatment and rehabilitation. Special emphasis is placed on providing each patient with a more complete understanding of himself, so that he can participate in his therapy with insight and intelligence.



 **Camelback Hospitals**

Scottsdale Camelback Hospital  
7575 E. Earll Drive  
Scottsdale, AZ 85251  
(602) 941-1108

Phoenix Camelback Hospital  
5055 N. 34th Street  
Phoenix, AZ 85018  
(602) 955-6200



**COUGH**

**COUGH**

**COUGH**



# For Sneezing and Nasal Congestion

## RU-TUSS<sup>®</sup> TABLETS

Each prolonged action tablet contains:

|                                             |         |
|---------------------------------------------|---------|
| Phenylephrine Hydrochloride . . . . .       | 25 mg   |
| Phenylpropanolamine Hydrochloride . . . . . | 50 mg   |
| Chlorpheniramine Maleate . . . . .          | 8 mg    |
| Hyoscyamine Sulfate . . . . .               | 0.19 mg |
| Atropine Sulfate . . . . .                  | 0.04 mg |
| Scopolamine Hydrobromide . . . . .          | 0.01 mg |

Ru-Tuss Tablets act continuously for 10 to 12 hours.

- Vasoconstrictor, antihistaminic actions
- Rapid and prolonged relief of nasal and sinus congestion
- Convenient b.i.d. dosage



Boots Pharmaceuticals,  
Pioneers in Medicine

# For Coughing With Nasal and Bronchial Congestion



## RU-TUSS EXPECTORANT

Each fluid ounce of Ru-Tuss Expectorant contains:

|                                   |         |
|-----------------------------------|---------|
| Codeine Phosphate                 | 65.8 mg |
| (WARNING: MAY BE HABIT FORMING)   |         |
| Phenylephrine Hydrochloride       | 30 mg   |
| Phenylpropanolamine Hydrochloride | 20 mg   |
| Pheniramine Maleate               | 20 mg   |
| Pyrilamine Maleate                | 20 mg   |
| Ammonium Chloride                 | 200 mg  |
| Alcohol                           | 5%      |

- Vasoconstrictor, antihistaminic, expectorant actions with codeine
- Rapid relief of upper respiratory congestion and cough
- Good tasting

veport, Louisiana 71106.

the Family



# SNEEZE

## RU-TUSS<sup>®</sup> TABLETS

### DESCRIPTION

Each prolonged action tablet contains:

|                                   |         |
|-----------------------------------|---------|
| Phenylephrine Hydrochloride       | 25 mg   |
| Phenylpropanolamine Hydrochloride | 50 mg   |
| Chlorpheniramine Maleate          | 8 mg    |
| Hyoscyamine Sulfate               | 0.19 mg |
| Atropine Sulfate                  | 0.04 mg |
| Scopolamine Hydrobromide          | 0.01 mg |

Ru-Tuss Tablets act continuously for 10 to 12 hours

Ru-Tuss Tablets are an oral antihistaminic, nasal decongestant and anti-secretory preparation.

**INDICATIONS AND USAGE** Ru-Tuss Tablets provide relief of the symptoms resulting from irritation of sinus, nasal and upper respiratory tract tissues. Phenylephrine and phenylpropanolamine combine to exert a vasoconstrictive and decongestive action while chlorpheniramine maleate decreases the symptoms of watering eyes, post nasal drip and sneezing which may be associated with an allergic-like response. The belladonna alkaloids, hyoscyamine, atropine and scopolamine further augment the anti-secretory activity of Ru-Tuss Tablets.

**CONTRAINDICATIONS** Hypersensitivity to antihistamines or sympathomimetics. Ru-Tuss Tablets are contraindicated in children under 12 years of age and in patients with glaucoma, bronchial asthma and women who are pregnant. Concomitant use of MAO inhibitors is contraindicated.

**WARNINGS** Ru-Tuss Tablets may cause drowsiness. Patients should be warned of the possible additive effects caused by taking antihistamines with alcohol, hypnotics, sedatives or tranquilizers.

**PRECAUTIONS** Ru-Tuss Tablets contain belladonna alkaloids, and must be administered with care to those patients with glaucoma, or urinary bladder neck obstruction. Caution should be exercised when Ru-Tuss Tablets are given to patients with hypertension, cardiac or peripheral vascular disease or hyperthyroidism. Patients should avoid driving a motor vehicle or operating dangerous machinery (See Warnings).

**OVERDOSAGE** Since the action of sustained release products may continue for as long as 12 hours, treatment of overdoses directed at reversing the effects of the drug and supporting the patient should be maintained for at least that length of time. Saline cathartics are useful for hastening evacuation of unreleased medication. In children and infants, antihistamine overdosage may produce convulsions and death.

**ADVERSE REACTIONS** Hypersensitivity reactions such as rash, urticaria, leukopenia, agranulocytosis, and thrombocytopenia may occur. Other adverse reactions to Ru-Tuss Tablets may be drowsiness, lassitude, giddiness, dryness of the mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, tachycardia, hypotension/hypertension, faintness, dizziness, tinnitus, headache, incoordination, visual disturbances, mydriasis, xerostomia, blurred vision, anorexia, nausea, vomiting, diarrhea, constipation, epigastric distress, hyperirritability, nervousness, dizziness and insomnia. Large overdoses may cause tachypnea, delirium, fever, stupor, coma and respiratory failure.

**DOSAGE AND ADMINISTRATION** Adults and children over 12 years of age, one tablet morning and evening. Not recommended for children under 12 years of age. Tablets are to be swallowed whole.

### HOW SUPPLIED:

Bottles of 100 Tablets

Bottles of 500 Tablets

Federal law prohibits dispensing without prescription

NDC 0524-0058-01

NDC 0524-0058-05

# COUGH

## RU-TUSS<sup>®</sup> EXPECTORANT

### DESCRIPTION

Each fluid ounce of Ru-Tuss Expectorant contains

Codeine Phosphate

(WARNING: MAY BE HABIT FORMING)

Phenylephrine Hydrochloride

Phenylpropanolamine Hydrochloride

Pheniramine Maleate

Pyrimamine Maleate

Ammonium Chloride

Alcohol

65.8

30

20

20

20

200

Ru-Tuss Expectorant is an oral antitussive, antihistaminic, nasal decongestant and expectorant preparation.

**INDICATIONS AND USAGE** Ru-Tuss Expectorant is indicated for symptomatic relief of upper respiratory congestion associated with pharyngitis, tracheitis, bronchitis, and allergic rhinitis. Also, for the temporary relief of symptoms associated with hay fever, allergies, nasal congestion and cough due to the common cold.

**CONTRAINDICATIONS** Hypersensitivity to antihistamines. Concomitant use of an antihypertensive or antidepressant drug containing a monoamine oxidase inhibitor is contraindicated.

Ru-Tuss Expectorant is contraindicated in patients with glaucoma, bronchial asthma and in women who are pregnant.

**WARNINGS** Ru-Tuss Expectorant contains codeine phosphate, therefore, the patient should be warned of the potential that this drug may be habit forming. Ru-Tuss Expectorant may cause drowsiness. Patients should be warned of the possible additive effects caused by taking antihistamines with alcohol, hypnotics, sedatives and tranquilizers.

**PRECAUTIONS** Patients taking Ru-Tuss Expectorant should avoid driving a motor vehicle or operating dangerous machinery (See Warnings). Caution should be taken with patients having hypertension, diabetes, hyperthyroidism and cardiovascular disease. Caution should also be used in patients with pulmonary, hepatic or renal insufficiency.

**ADVERSE REACTIONS** Ru-Tuss Expectorant may cause drowsiness, lassitude, giddiness, dryness of mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, tachycardia, hypotension/hypertension, faintness, dizziness, tinnitus, headache, incoordination, visual disturbances, mydriasis, xerostomia, blurred vision, anorexia, nausea, vomiting, diarrhea, constipation, epigastric distress, hyperirritability, nervousness and insomnia. Overdoses may cause restlessness, excitation, delirium, tremors, euphoria, metabolic acidosis, stupor, tachycardia and even convulsions.

**DOSAGE AND ADMINISTRATION** Adults: 1 or 2 teaspoonfuls, orally, every 4 hours, not to exceed 10 teaspoonfuls in any 24-hour period.

Children 6 to 12 years of age: ½ the adult dose, not to exceed 6 teaspoonfuls in 24-hour period. Children 2 to 6 years of age: ½ teaspoonful every 4 hours, not to exceed 3 teaspoonfuls in any 24-hour period. Children under 2 years of age: Use as directed by a physician.

### HOW SUPPLIED

Pint bottles (16 fl. oz.)

Federal law prohibits dispensing without prescription

NDC 0524-1010

### DISTRIBUTED BY:

Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

### MANUFACTURED BY:

Vitarine Company, Inc.  
Springfield Gardens, New York 11413



Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106

Pioneers in Medicine For the Family

# Saddle up for tennis!

The Wickenburg Inn offers a superb combination of sunshine, the romantic Old West — trail rides over 4700 undisturbed acres of magnificent Arizona high desert 60 miles northwest of Phoenix — and the luxury of 11 courts for 51 casitas. Professional instruction is available . . . to complete a perfect setting for an adventure in better tennis.

See your Travel Agent, or call 1-684-7811



## THE WICKENBURG INN Tennis and Guest Ranch

P.O. Box P, Dept. AM  
Wickenburg, Arizona 85358  
(602) 684-7811

| Rates per person from |      |      |
|-----------------------|------|------|
|                       | Dbl. | Sgl. |
| Thru Oct              | \$40 | \$48 |
| Nov & Jan             | 59   | 72   |
| Dec &<br>Feb-Apr      | 70   | 76   |

Two night minimum  
stay — rates include  
all meals, tennis,  
horseback riding.  
Call for clinic rates.



# When we help establish your practice, your primary cares will be solved.

To establish a Primary Care practice, your first need is to solve your primary cares.

That's where we come in.

We can offer you a choice of over 60 well equipped acute care hospitals coast to coast. We can offer you selected financial assistance. We can offer you management consulting.

So whether you're interested in a solo, partnership, or group practice, contact NME today.

We'll help establish your practice.  
And solve your primary cares.

For further information, contact:  
Raymond C. Prulitt, Director, Physician Relations  
National Medical Enterprises  
11620 Wilshire Blvd., Los Angeles, California 90025.  
Call Toll-Free 800-421-7470  
or collect (213) 479-5526.

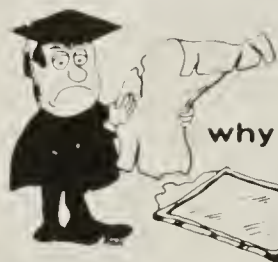
**NATIONAL MEDICAL  
ENTERPRISES, INC.**



"The Total Health Care Company."  
An Equal Opportunity Employer M/F

## YOU WORKED HARD

FOR THAT  
DIPLOMA..



why not have it  
laminated?

it will last a lifetime....

## THE PLAQUE SHOP

Wood plaques — Ready to hang  
No glass to break — Moisture proof  
Dirt proof — Impressive.  
Our plaques are manufactured locally.

ARIZONA LAMINATING SERVICE, INC.  
7231 East First Avenue  
Scottsdale, Arizona 85251  
(602) 945-9338



# sponsored group insurance

As a member of the Arizona Medical Association, you can take advantage of life, health and accident insurance selected to meet your needs, with the savings available through group insurance.

The Arizona Medical Association has provided its members with sponsored insurance programs for over 25 years.

The programs currently available are: disability, term life (for members and their spouses), defendant's reimbursement, accidental death and overhead expense.

Companies and policies are selected to provide coverage and service that meets a professional's needs and standards.

The Arizona Medical Association provides supervision of the administration of these programs as needed to insure that they continue to merit your support.

## ARIZONA MEDICAL ASSOCIATION



life, health & accident insurance

administered by

HEALTH AGENCIES OF THE WEST, INC.

local service by

DEAN S. DAVIDSON INSURANCE AGENCY, INC.

4620 North 16th Street, #200, Phoenix, Arizona 277-6672  
or 630 Craycroft, Tucson, Arizona 85711 745-0793



# COMPUTED TOMOGRAPHY OF THE HEAD

## CNS Computed Neurological Scanning Center

Baptist Medical Center/Out Patient Facility • 6036 North 19th Avenue, Suite 207 •  
Phoenix, Arizona 85015 • (602) 242-5859

Alan Yudell, MD — Ralph B. Lilly, MD — Barry A. Hendin, MD — Harry S. Tamm, MD

# Video Documentation

**FAST □ EFFECTIVE □ INDISPUTABLE**



Today more companies, professionals, and individuals are turning to video documentation for a wide variety of applications. In many cases video proves to be less expensive and more effective than photography and paper documentation. Video alone delivers a total picture. Video combined with audio tells the total story.

At United Video Services (UVS), we provide our clients with a complete and professional service. Our response is fast, our work is concise and innovative, and we are sensitive to the unique demands and individual end-usage of each project. A sampling of UVS video applications include:

- Business & Medical Training Films
- Product/Service Presentations
- Household & Company Inventories (insurance and inventory control)
- Investigations
- Wills
- Education
- Construction Inspection & Documentation
- Depositions

For more information about UVS, or to find out how video documentation can best serve you or your business, call or write to:

**United Video Services**  
4820 North 74th Street  
Scottsdale, AZ 85251  
(602) 994-5975







# Primary Pulmonary Hypertension

## A Review

Rajendra Savajiyani, M.D.  
Alberto Benchimol, M.D.  
Kenneth B. Desser, M.D.

Editor:  
Kenneth B. Desser, M.D.

### Definition

Primary pulmonary hypertension (PPH) is a disease of unidentified cause, characterized by precapillary pulmonary arteriopathy leading to pulmonary hypertension. Observed predominantly in women of child bearing age, PPH results in death within a few months to three years. By definition, all other causes of pulmonary hypertension must be excluded before making the diagnosis of PPH.

### History and Epidemiology

PPH was described by Romberg<sup>1</sup> in 1891 and Monckberg<sup>2</sup> on 1907. It was considered to be a very rare entity before the advent of right heart catheterization and the latter procedure is undoubtedly responsible for more frequent detection of the disease.<sup>3-10</sup> Approximately 1000 cases of PPH have been reported in subjects ranging from the newborn period to the ninth decade of life.<sup>11-13</sup> The majority of affected patients are women ages 30 to 50 years with a female to male ratio of 5:1. It has been suggested that PPH of childhood probably has a different etiology with a prominent vascular component.<sup>14,15</sup>

From: The Institute for Cardiovascular Diseases, Good Samaritan Hospital, 1033 East McDowell Road, Phoenix, Arizona 85006. Reprint requests to Alberto Benchimol, M.D., Good Samaritan Hospital, P.O. Box 2989, Phoenix, Arizona 85062. Supported in Part by the E. Nichols, Kim Sigsworth Memorial Funds and the Institute for Cardiovascular Diseases, Inc.

### Etiology

Several hypotheses have been advanced in order to account for PPH and they are categorized as follows:

1. Genetic: Familial occurrence of PPH is described in several reports.<sup>16-17,18</sup> Both autosomal dominant<sup>17</sup> and recessive<sup>18</sup> modes of inheritance have been reported. Genetic anticipation (i.e. offspring affected at an earlier age than either parent) is described by Melmon and Braunwald.<sup>17</sup>

Genetically determined enhanced vasomotor reactivity of the pulmonary vasculature has been proposed and it is suggested that an interplay between environmental factors such as hypoxia and enhanced pulmonary vascular reaction may play a role in the evolution of PPH. A genetically determined hypercoagulable state leading to multiple occult microthromboemboli or a genetic deficiency in the fibrinolytic system has also been implicated in the development of PPH.<sup>19</sup>

Several congenital vascular defects, including hypertrophy of the small pulmonary arteries, persistent fetal pulmonary vasculature, increased systemic-pulmonary arterial collaterals, generalized degenerative pulmonary arteriopathy, medial aplasia or hypoplasia of the small pulmonary arteries with reactive intima proliferation and plexiform lesions have been linked to the evolution of PPH. However, some of these lesions are considered to be the result rather than the cause of PPH.

2. Autoimmune Disease: Several collagen vascular disorders are associated with PPH. Raynaud's phenomenon occurs in 20% to 30% of patients with this disease.<sup>20</sup> Systemic lupus erythematosus, rheumatoid arthritis, progressive systemic sclerosis, "Crest" syndrome, dermatomyositis, Hashimoto's disease, polyarteritis nodosa, chronic active hepatitis and post-necrotic cirrhosis have all been reported in association with PPH.<sup>21,22</sup>

3. Drugs and Dietary Factors: Both hypersensitivity and idiosyncratic reactions to several drugs including penicillin, sulfonamides, chloramphenicol and phenformin have been linked to PPH. The appetite suppressant drug, aminorex fumurate was involved in an epidemic of PPH in West Germany, Austria and Switzerland during 1966-68.<sup>23</sup> Only a minority of subjects taking this drug developed PPH and a genetic susceptibility was considered. Aminorex fumurate consistently failed to produce pathological changes of PPH in animal studies.<sup>24</sup>

Bush tea, containing *crotalaria fulva* with its active pyrrolizidine alkaloid fulvine, is commonly consumed in the West Indies and is believed to be the cause of pulmonary and hepatic venoocclusive disease.<sup>25</sup>

4. Female Hormones: Supporting the role of female hormones in the development of PPH are: a) This disorder most frequently occurs in females of child bearing age and the onset often coincides with puberty.

PPH has been reported in women taking oral contraceptives presumably secondary to the thrombogenic potential of the latter. c) PPH often exacerbates during pregnancy or in the postpartum period.

5. **Autonomic Nervous System Dysfunction:** It is suggested that the autonomic nervous system plays a role in the development of PPH through stimulation of the pulmonary vasculature either by neuronally released or circulating catecholamines.<sup>20</sup>

Occasionally, pulmonary hypertension and systemic hypertension may coexist, raising the possibility that a similar autonomic mechanism may produce both conditions.<sup>20</sup>

6. **Recurrent Occult Microthromboembolism:** It has been proposed that PPH may result from recurrent episodes of asymptomatic pulmonary emboli. Several pathological studies have, however, demonstrated distinct differences between PPH and recurrent pulmonary thromboembolism. Thrombi of different sizes and in various stages of organization are described in the latter while in the former, when present, they appear to be of recent origin.<sup>20</sup>

### Pathology

In 1973, W.H.O.,<sup>27</sup> defined PPH as pulmonary hypertension with right ventricular hypertrophy but normal pulmonary capillary wedge pressure and left atrial pressure of unknown cause. PPH is divided into three distinct pathological categories.

1. Plexogenic pulmonary arteriopathy.
2. Recurrent pulmonary thromboembolism.
3. Pulmonary veno-occlusive disease.

*Plexogenic pulmonary arteriopathy* involves muscular pulmonary arteries and arterioles and produces characteristic histological abnormalities such as; a) intramural fibrosis producing an "onion-skin" configuration, b) medial hypertrophy, c) necrotising arteriolitis and d) plexiform lesions, i.e. dilated thin walled branches of pulmonary arteries probably resulting from endothelial proliferation. Although plexiform lesions are characteristic of primary pulmonary hypertension and some have considered it as a prerequisite for diagnosis,<sup>27</sup> they are not pathognomonic of this disorder.

*Recurrent pulmonary thromboembolism:* small microthromboemboli are found in small pulmonary arterioles but they are thought to be secondary events.

*Pulmonary veno-occlusive disease:* Thrombosis of the pulmonary veins with subsequent arteriolization of their walls is the principal finding in this entity. Since such findings can arise in association with an elevated pulmonary capillary wedge pressure and pulmonary parenchymal changes,<sup>28</sup> most authorities do not consider it true PPH.

Secondary effects of PPH may produce right ventricular or atrial hypertrophy, increase in tricuspid annulus area, main pulmonary arterial dilation, an aneurysmal pulmonary trunk and both atherosclerosis and cystic medial necrosis of the proximal pulmonary

arteries. Strikingly, the peripheral pulmonary artery branches are markedly attenuated.<sup>10</sup>

### Symptoms

The onset is usually insidious, yet symptoms may appear abruptly over a period of a few weeks.

1. *Dyspnea:* Dyspnea on exertion is the most common presenting symptom. In advanced cases, the patient may complain of dyspnea at rest and uncommonly, paroxysmal nocturnal dyspnea. Orthopnea, when present, connotes a dismal outlook.<sup>9</sup>

2. *Weakness:* Weakness and fatigue are commonly present and attributed to low cardiac output.

3. *Syncope:* Syncope is common and often a frightening symptom. It usually occurs with exertion but may be occasioned by emotional stress or sudden movement. It may be preceded by dizziness, a choking sensation, epigastric fullness or lightheadedness. Following a brief period of unconsciousness (usually seconds to a few minutes), patients may complain of nausea, vomiting, diarrhea or weakness. Occasionally, the patient may exhibit seizure-like activity. Syncope probably results from an interplay of several factors, including low fixed cardiac output, exercise induced vasodilation, hypotension and impaired blood supply to the sinoatrial and atrioventricular nodes.

4. *Chest Pain:* Precordial discomfort is usually atypical, lasting for about 15 to 30 minutes and variably responsive to nitroglycerin. Occasionally, the discomfort may simulate typical angina pectoris, but coronary angiograms in these patients reveals no abnormality. The precise cause of the pain in these patients is not known but is thought to be secondary to low cardiac output or perhaps coronary arterial spasm.

5. *Palpitations:* Subjective sensations of disordered cardiac activity are ascribed to arrhythmias which are frequently associated with PPH.

On occasion, the patient may present with a dry nonproductive cough or rarely with hemoptysis. Hemoptysis is thought to arise from the rupture of plexiform lesions. The patient may also complain of hoarseness secondary to recurrent laryngeal nerve compression.

Interestingly, neuropsychiatric symptoms of anxiety, depression, agitation and even psychosis have been reported in patients with PPH.<sup>29</sup> Hypoxia and low cardiac output may be contributory factors.

Late in the course of PPH, the signs and symptoms of right ventricular failure dominate the clinical picture.

**Physical findings:** Early in the course, the patient is tachycardiac and tachypneic with a normal or decreased blood pressure. With advanced disease, the pulse is thready and the pulse pressure narrow.

Examination of the jugular venous pulse reveals a giant "a" wave. With the onset of right ventricular failure and tricuspid insufficiency, giant "v" waves may appear with disappearance of the "a" wave. The carotid pulse is usually normal or it may be of low amplitude. Chest examination reveals no distinctive or abnormal findings. Precordial palpation exhibits a right



ventricular heave, palpable P<sub>2</sub> and rarely a thrill.

On auscultation, the first sound is usually normal, but both right heart fourth and third heart sounds may be present. P<sub>2</sub> is accentuated with normal or wide splitting of the second sound in the presence of right ventricular failure. An early systolic click followed by a pulmonic ejection murmur is usually present. When pulmonary arterial pressure approaches or even exceeds systemic pressure, the murmur of pulmonic insufficiency appears. With the onset of right ventricular failure and dilatation, the systolic murmur of tricuspid insufficiency is manifested.

**Cyanosis:** Peripheral cyanosis is common and most patients with cyanosis have some degree of right-to-left shunt. The intensity of cyanosis is usually out of proportion to the amount of arterial oxygen desaturation. With the onset of right heart failure the liver may enlarge and become tender or even pulsatile in some instances. Ascites, peripheral edema and jaundice are found with marked hepatic congestion. Clubbing is rare and its presence should indicate another etiology.

### Laboratory Findings

**Hematological Tests:** There may be mild polycythemia in the presence of chronic hypoxia and leucocytosis is often found. The erythrocyte sedimentation rate is usually normal. Abnormal platelet function tests, a hypercoagulable state, and defects in the fibrinolytic system have been described.<sup>30,31</sup>

**Chest X-ray:** The pulmonary trunk and its main branches are dilated with marked tapering of the peripheral branches resulting in oligemic peripheral lung fields. There may be right ventricular and right atrial dilation.<sup>32</sup>

**Arterial Blood Gases:** These are usually normal but may show mild oxygen desaturation in the presence of right ventricular failure and respiratory alkalosis secondary to hyperventilation.

**Pulmonary Function Tests:** Alveolar capillary diffusion "block" and ventilation/perfusion abnormalities have been reported.<sup>33</sup> Occasionally, vital capacity and lung compliance are also reduced. Flow rates are normal. The main value of pulmonary function tests is the exclusion of other pulmonary parenchymal and airway diseases causing pulmonary hypertension.

**Lung Scan:** This examination is usually normal and generally not indicated because it carries the risk of further blockage of the already critically reduced pulmonary vascular cross sectional area by macroaggregated albumin.<sup>20</sup>

**EKG Findings:** Sinus rhythm with nonspecific ST-T changes and typical findings of right ventricular hypertrophy, right atrial enlargement and right axis deviation are usually present. In advanced cases, atrial fibrillation, atrial flutter and ventricular as well as atrial premature beats may appear.

**Echocardiography:** Ultrasonic examination is very useful in assessing the severity of PPH, following the course of pulmonary hypertension, as well as excluding other

causes of "occult" pulmonary hypertension such as silent mitral stenosis, left atrial myxoma, and cor triatriatum. The echographic findings are those of right heart failure and pulmonary hypertension. In occasional cases idiopathic hypertrophic obstructive cardiomyopathy may be mimicked.<sup>34</sup>

**Lung Biopsy:** This procedure is not indicated because of the inherent risk of sudden death. Additionally, the findings may be inconclusive and misleading.

**Cardiac Catheterization and Pulmonary Angiogram:** Even though these procedures carry an increased risk of morbidity and mortality,<sup>35</sup> they are usually necessary in confirming the diagnosis of PPH and excluding other known remediable causes of pulmonary hypertension. In skilled hands, the judicious and cautious use of these procedures has been very safe and rewarding.

Typically, right atrial, right ventricular and pulmonary pressures are elevated. Pulmonary arterial "wedge" pressure is difficult to obtain, but when measured, it is normal. Left atrial and left ventricular pressures are normal. Pulmonary arterial pressure is usually twice the normal, and in advanced cases, it may exceed systemic pressure. Pulmonary vascular resistance is five to ten times normal. The cardiac index is reduced and the arterio-venous oxygen difference increases. A patent foramen ovale with small right-to-left shunt is frequently present.<sup>20</sup> Right ventriculography reveals a thick walled dilated chamber. Pulmonary angiography discloses dilation of the pulmonary trunk and its main branches with marked tapering of peripheral small branches. During the injection of contrast media, bradycardia and peripheral vasodilatation may occur, which may be readily prevented with atropine or phenylephrine.<sup>36</sup> The minimum amount of radio-opaque dye should be utilized.

### Treatment

Several vasodilators including isoproterenol, tolazoline, blocking agents, and phenoxybenzamine, have been tried with the hope that they might relieve the vasoconstrictive element and thereby lower the pulmonary arterial pressure. These agents may be effective for a brief duration and none has altered the devastating clinical course. Currently, hydralazine, oral phentolamine and diazoxide<sup>37</sup> are most frequently employed along with calcium channel blockers, minoxidil and captopril. Reserpine, anticoagulants, sympathectomy, steroids and cytotoxic agents have been tried without any real benefit. Prostacyclin<sup>38</sup> is the latest agent which is being used for treatment.

### Natural History

The natural history of PPH is not clearly established as most patients come to the physician's attention only after the disease is far advanced. Most deaths are sudden and preceded by effort-syncope yet the exact mechanism of demise usually is not determined. A small number of deaths have followed cardiac catheterization, pulmonary angiograms, acute pulmonary embolism, pregnancy, surgery, anesthesia, dissection or rupture of

the pulmonary artery and sedation.

## Acknowledgements

We wish to acknowledge the technical assistance of Jennie Goff and Patricia McMains.

## References

1. Romberg E: Zur Frage der Herzganglien. *Centralblatt fur Physiologie Leipzig und Wien*. 4:601, 1890-1891.
2. Monckberg JG: Ueber die genuine Arteriosklerose der Lungenarterie. *Deutsch Med Wschr* 33:1243-46, 1907.
3. Brenner O: Pathology of the vessels of the pulmonary circulation. *Arch Intern Med* 56:211-237 and 724-752, 1935.
4. Brill IC, Krygier JJ: Primary pulmonary vascular sclerosis. *Arch Intern Med* 68:560-577, 1941.
5. Dresdale DT, Schultz M, Michtom RJ: Primary pulmonary hypertension. I. Clinical and hemodynamic study. *Am J Med* 11:686-705, 1951.
6. Parmley LF, Jones FS: Primary pulmonary arteriosclerosis. *Arch Intern Med* 90:157-181, 1952.
7. McGuire J, Scott RC, Helm RA, Kaplen S, Gall EA, Biehl JP: Is there an entity primary pulmonary hypertension? *Arch Intern Med* 99:917-931, 1957.
8. Yu, PN: Primary pulmonary hypertension: Report of six cases and review of literature. *Ann Intern Med* 49:1138-1161, 1958.
9. Gatewood RP, Yu PN: Primary pulmonary hypertension: Progress in Cardiology. Philadelphia, Lea and Febiger, pp 305-349, 1979.
10. Fishman AP, Pietra GG: Primary pulmonary hypertension. *Annu Rev Med* 31:421-431, 1980.
11. Wagenvoort CA, Wagenvoort N: Pathology of Pulmonary Hypertension. New York, John Wiley and Sons, 1977.
12. Blum A: Die Prognose des chronischen cor pulmonale. *Arch Kreislaufforsch* 48:57-78, 1965.
13. MacCallum WG: Obliterative pulmonary arteriolosclerosis. *Bull Johns Hopkins Hosp* 49:37-48, 1931.
14. Husson GS, Wyatt TC: Primary pulmonary obliterative vascular disease in infants and young children. *Pediatrics* 23:493-506, 1959.
15. Wagenvoort CA, Wagenvoort N: Primary pulmonary hypertension. A pathologic study of the lung vessels in 156 clinically diagnosed cases. *Circulation* 42:1163-1184, 1970.
16. Boiteau GM, Libanoff AJ: Primary pulmonary hypertension: Familial incidence. *Angiology* 14:260-264, 1963.
17. Melmon KL, Braunwald E: Familial pulmonary hypertension. *N Engl J Med* 269:770-775, 1963.
18. Hood HB, Jr, Spencer H, Lass RW, Daley R: Primary pulmonary hypertension: Familial occurrence. *Br Heart J* 30:336-343, 1968.
19. Kingdon HS, Cohen LS, Roberts WC, Braunwald E: Familial occurrence of primary pulmonary hypertension. *Arch Intern Med* 118:422-426, 1966.
20. Alpert JS, Braunwald E: Primary pulmonary hypertension. *Heart Disease. A Text Book of Cardiovascular Medicine*. Braunwald E (ed), Philadelphia, Saunders, pp 1633-1642, 1980.
21. Morrison EB, Gaffney FA, Eigenbrodt EH, Reynolds RC, Buja LM: Severe pulmonary hypertension associated with macronodular (postnecrotic) cirrhosis and autoimmune phenomena. *Am J Med* 69:513-519, 1980.
22. Sackner MA, Akgun N, Kimbel P, Lewis DH: The pathophysiology of scleroderma involving the heart and respiratory system. *Ann Intern Med* 60:611-630, 1964.
23. Gurtner HP: Pulmonary hypertension produced by the ingestion of substances. *Bull Physio Path Resp* 5:435-441, 1969.
24. Kay JM, Smith P, Heath D: Aminorex and the pulmonary circulation. *Thorax* 26:262-270, 1971.
25. Kay JM, Heath D: *Crotalaria spectabilis*. The Pulmonary Hypertension Plant. Springfield, Charles C. Thomas, 1969.
26. Atkins JM, Mitchell HC, Pettinger WA: Increased pulmonary vascular resistance with systemic hypertension. Effect of minoxidil and other antihypertensive agents. *Am J Cardiol* 39:802-807, 1977.
27. Hatano S, Strasser T (eds): Primary pulmonary hypertension. Report of a W.H.O. Meeting. World Health Organization, Geneva, p 45, 1975.
28. Edwards WD, Edwards JE: Clinical primary pulmonary hypertension. Three pathologic types. *Circulation* 56:884-888, 1977.
29. Sleeper JC, Orgain ES, McIntosh HD: Primary pulmonary hypertension. Review of clinical features and pathologic physiology with a report of pulmonary hemodynamics derived from repeated catheterization. *Circulation* 26:1358-1369, 1962.
30. Trell E, Lindstrom C: Primary and chronic thromboembolic pulmonary hypertension. Clinical and pathoanatomic observations. *Acta Med Scand (Suppl)* 534:1-30, 1972.
31. Inglesby TV, Singer JW, Gordon DS: Abnormal fibrinolysis in familial pulmonary hypertension. *Am J Med* 55:5-14, 1973.
32. Anderson G, Reid L, Simon G: The radiographic appearances in primary and in thromboembolic pulmonary hypertension. *Clin Radiol* 24:113-120, 1973.
33. Winters WL, Jr, Joseph RR, Learner N: "Primary" pulmonary hypertension and Raynaud's phenomenon. Case report and review of the literature. *Arch Intern Med* 114:821-830, 1964.
34. Goodman DJ, Harrison DC, Popp RL: Echocardiographic features of primary pulmonary hypertension. *Am J Cardiol* 33:438-443, 1974.
35. Schafer H, Blain JM, Ceballos R, Bing RJ: Essential pulmonary hypertension: Report of clinical-physiologic studies in three patients, with death following catheterization of heart. *Ann Intern Med* 44:505-523, 1956.
36. Primary pulmonary hypertension. (Editorial) *Br Med J* 282:170-171, 1981.
37. Klinker WP: Treatment for primary pulmonary hypertension. *Am Heart J*. 100:587-588, 1980.
38. Watkins WD, Peterson MB, Crone RK, Shannon DC, Levine L: Prostacyclin and prostaglandin E1 for severe idiopathic pulmonary artery hypertension. *Lancet* 8177:1083, 1980 (Letter).





## **Kaposi's Sarcoma Presenting in the Homosexual Man — A New and Striking Phenomenon!**

Steven P. Borkovic, M.D.  
Robert Allen Schwartz, M.D., M.P.H.

**Editors:**

Ronald C. Hansen, M.D.  
Robert A. Schwartz, M.D.

Kaposi's sarcoma is a remarkable angiosarcoma whose epidemiology has attracted interest for over a hundred years. Lately there has been an amazing cluster of over fifty patients with Kaposi's sarcoma in the homosexual communities of New York and San Francisco. This suggests that the usual epidemiologic profile has now expanded to homosexual men of relatively young age.

We report a 37-year-old sexually active homosexual man who presented with violaceous plaques and nodules of Kaposi's sarcoma. Amazingly, mucocutaneous screening of the patient's lover showed an erythroplakia of the lateral tongue, a biopsy of which revealed an invasive squamous cell carcinoma of the tongue.

### **Case Report**

A 37-year-old homosexual white man of Northern European ancestry was seen in October 1981 with a nine-month history of multiple purplish lesions on both lower extremities which began on the calves but spread to involve the feet, thighs, and inguinal areas bilaterally. The patient was in apparent good health and his only past illnesses were multiple episodes of gonococcal urethritis. He had no past history of syphilis, amoebiasis, giardiasis, hepatitis or herpes progenitalis. The patient takes no medications, but he is a regular user of inhaled amyl nitrite.

From: Department of Dermatology, University of California School of Medicine and Veterans Administration Medical Center, San Francisco, California.

The family history is significant as the patient's mother is presently being treated for ovarian carcinoma. The patient knows of no Jewish or Italian ancestors. He is currently in a stable homosexual relationship. His partner recently presented with an erythematous eroded plaque on the lateral aspect of the tongue which on biopsy was an invasive squamous cell carcinoma; there was no significant lymphadenopathy. The patient has undergone laser ablation of his malignancy.

The physical examination revealed multiple violaceous patches and nodules ranging in diameter from 0.25 to 2.0 cm, which were distributed diffusely over both lower extremities (Figure 1). There were no palpable lymph nodes nor mucosal lesions at the time of the initial examination. A biopsy of one of the cutaneous lesions revealed spindle-shaped cells in the dermis which formed vascular slits associated with an inflammatory infiltrate containing plasma cells (Figure 2). The staging work-up including chest x-ray, upper GI endoscopy, and colonoscopy showed no extracutaneous involvement. Complete blood count, urinalysis, and routine blood chemistries were within normal limits. The VDRL was non-reactive. Mumps and dermatophyton skin tests showed positive reactions indicating the patient was not anergic. Serological titres for cytomegalovirus were positive 1:24 for IgG, 1:32 for IgM (courtesy of William L. Drew, M.D.). During the two weeks after the initial presentation, new skin lesions appeared on the upper extremities. In addition, palpable lymph nodes appeared in the posterior cervical, axillary, and inguinal areas bilaterally. Because of the aggressive nature of the tumor, the lymph node biopsy was deferred, and the patient was immediately placed on combination chemotherapy with intravenous vinblastine, doxorubicin, and bleomycin. Within one week the disease ceased to progress. Both the lymph nodes and the skin lesions became smaller and in some cases disappeared.

### **Comment**

Kaposi's sarcoma (KS) is a distinctive angiosarcoma which has been recently well reviewed.<sup>1-3</sup> In American patients the usual epidemiological distribution showed overwhelmingly the patients to be of Italian or Jewish lineage (89% of 37 patients in one series), with 84% of them male and most of middle-age or older.<sup>4</sup> KS is rather frequent in areas of Africa, such as Uganda, where it represents nine percent of all malignancies.<sup>5</sup> This may be due to cytomegalovirus infections, just as with Epstein-Barr virus in association with Burkitt's lymphoma.<sup>6</sup>

Others at increased risk of developing KS are those who are immunosuppressed, in whom the usual epidemiology of Italian or Jewish ancestry and maleness may be different.<sup>7</sup> Recently, there is another group of patients which has been recognized to be at increased risk of KS, homosexual men.<sup>8-11</sup> Why homosexual men are at increased risk is unclear; however, cytomegalovirus has been linked to KS and may be sexually transmitted.<sup>8</sup> It may in itself be

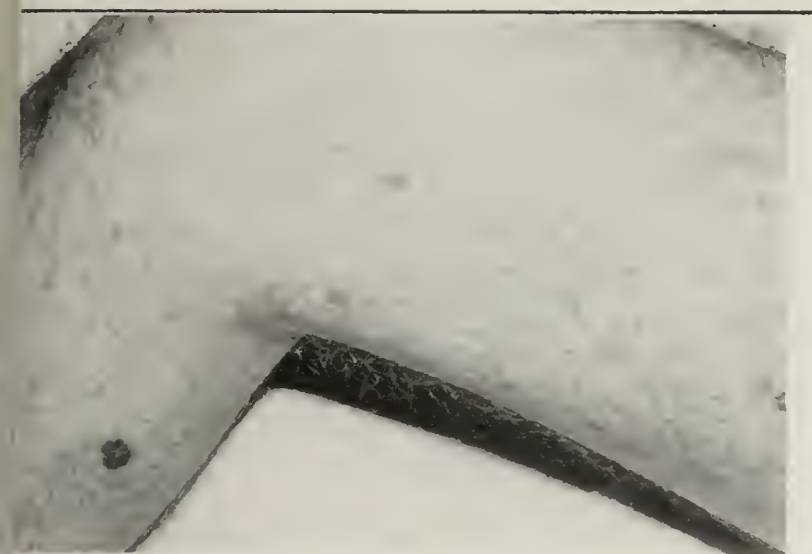


**Figure 1**  
Right leg showing multiple violaceous nodules.

oncogenic or work in association with immunosuppression, the latter induced by multiple sexually transmitted infections or their therapy. In addition, the use of inhaled nitrites may be oncogenic through similar mechanisms.

The sexual transmission of a malignancy has never been documented. The case, with regard to genital herpes and cervical cancer, has heretofore been the best example; however, in view of the recent outbreak among homosexual men in New York and California, the possibility of sexual transmitted herpesvirus (probably cytomegalovirus) producing malignancy must be considered. Amazingly, routine screening of our patient's partner revealed an erosion of the lateral aspect of the tongue which on biopsy showed an invasive squamous cell carcinoma. Although this patient was a tobacco smoker, the possibility of oral squamous cell carcinoma from a herpesvirus may also be worth considering. Certainly in view of the occasional occurrence of KS confined to the oral cavity,<sup>1</sup> a good oral examination on homosexual men for both KS and squamous cell carcinoma is important.

This type of KS and its course may be different from the usual KS seen in the USA and Europe. Like the type seen in young men in Africa, this tends to demonstrate rapid progression of skin lesions and lymphadenopathy. Without therapy this may be fatal. In the recent American experience, the patients have developed *pneumocystis carinii* pneumonitis that is usually associated with severe immunodeficiency.<sup>8</sup>

Therapy is a difficult problem. The treatment of typical nodular KS has been well summarized.<sup>1</sup> Intralesional and/or intravenous vinblastine in a lower dose regimen, as pioneered by Klein, is often employed.<sup>11</sup> Immunotherapy may also be considered.<sup>13,14</sup> Recently combination chemotherapy with doxorubicin, bleomycin, vinblastine, and dacarbazine has been employed with success;<sup>15</sup> however, the best therapy for the homosexual man with KS awaits further evaluation.

#### **Acknowledgement:**

We wish to thank the following physicians for assisting

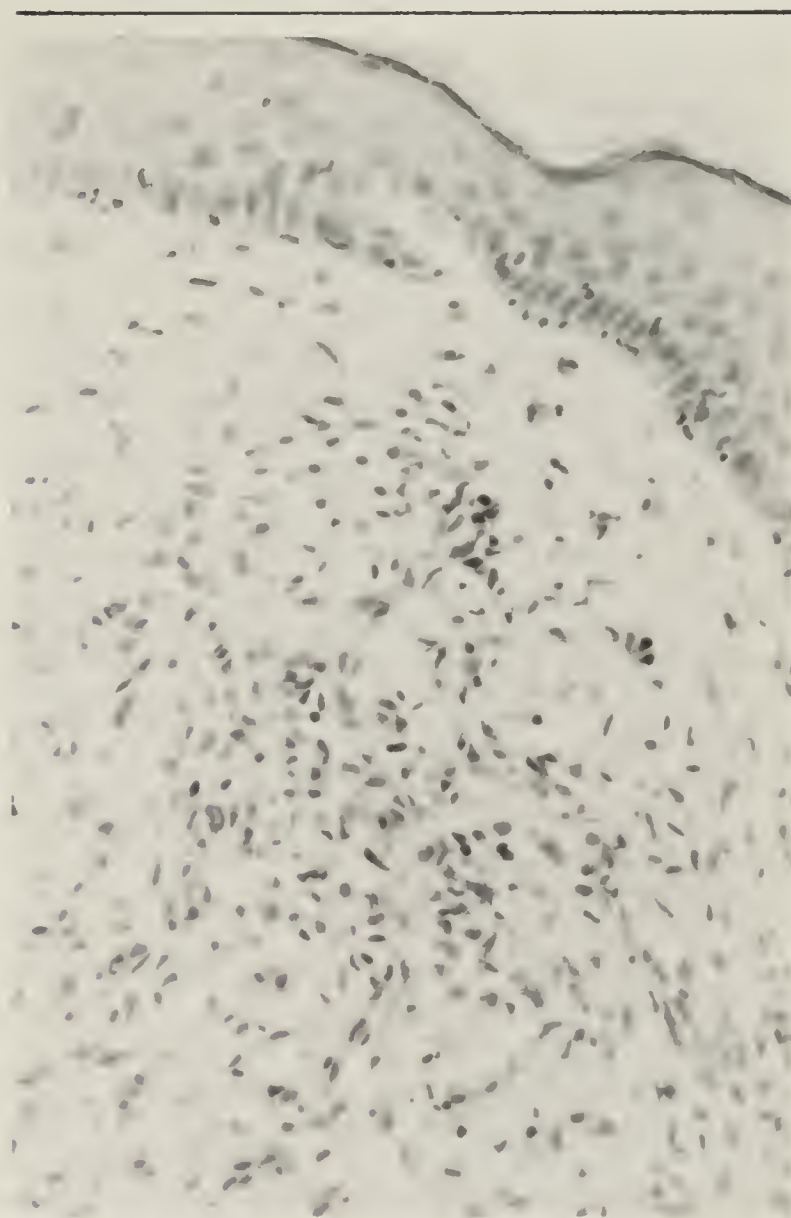


**Figure 2**  
Low power photomicrograph of skin biopsy showing spindle-shaped cells in the dermis forming vascular slits. (Hematoxylin-eosin, original magnification x 100).

us with the clinical management of this patient: Gail Wagner, M.D., Quita V. Jones Cruciger, M.D., and John L. Ziegler, M.D. The secretarial assistance of Ms. Margarita Devincenzi is also gratefully acknowledged. Patients with Kaposi's sarcoma can be referred to the Kaposi's sarcoma clinic, University of California, San Francisco under the auspices of Marcus A. Conant, M.D.

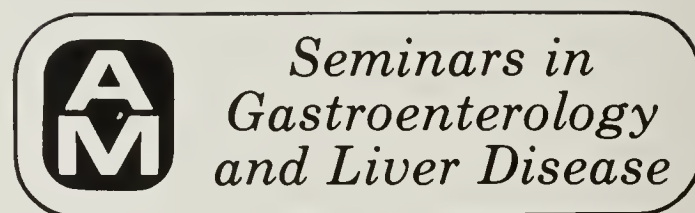
#### **References**

1. Klein E, Schwartz RA: Cancer and the skin. In: *Cancer Medicine* ed 2, Holland JF, Frei E, III (eds), Lea & Febiger, Philadelphia, pp 2057-2108, 1982.
2. Schwartz RA, Burgess GH, Hoshaw RA: Patch stage Kaposi's sarcoma. *J Am Acad Derm* 2:509-512, 1980.
3. Synder RA, Schwartz RA: Telangiectatic Kaposi's sarcoma: Occurrence in a patient with thymoma, myasthenia gravis, and chronic immunosuppressive therapy. *Arch Dermatol* (In Press).
4. Laor Y, Schwartz RA: Epidemiologic aspects of American Kaposi's sarcoma. *J Surg Oncol* 12:299-303, 1979.
5. Taylor JF, Templeton AC, Vogel CL, Ziegler JL, Kyalwazi SK: Kaposi's sarcoma in Uganda; A clinico-pathological study. *International J Cancer* 8:122-135, 1971.
6. Giraldo G, Beth E, Henle W, et al: Antibody patterns to herpesviruses in Kaposi's sarcoma: II. Serological association of American Kaposi's sarcoma with cytomegalovirus. *International J Cancer* 22:126-131, 1978.

*Continued on next page*



7. Hoshaw RA, Schwartz RA: Kaposi's sarcoma after immunosuppressive therapy with prednisone. *Arch Dermatol* 116:1280-1282, 1980.
8. Editorial: Kaposi's sarcoma and *pneumocystis* pneumonia among homosexual men — New York and California. *CDC MMWR* 30:305-308, 1981.
9. Schwartz RA, Kardashian JF, McNutt NS, Crain WR, Welch KL, Choy SH: Cutaneous angiosarcoma resembling anaplastic Kaposi's sarcoma in homosexual man. (Submitted for publication).
10. Gottlieb GJ, Ragaz A, Vogel JV, et al: A preliminary communication on extensively disseminated Kaposi's sarcoma in young homosexual men. *Am J Dermatopathol* 3:111-114, 1981.
11. Friedman-Kien AE: Disseminated Kaposi's sarcoma syndrome in young homosexual men. *J Am Acad Dermatol* 5:468-471, 1981.
12. Klein E, Schwartz RA, Laor Y, et al: Treatment of Kaposi's sarcoma with vinblastine. *Cancer* 45:427-431, 1980.
13. Klein E, Schwartz RA, Solomon J, et al: Accessible tumors. In: *Clinical Immunotherapy*. LoBuglio AF (ed), Marcel Dekker, Inc., New York, pp 31-71, 1980.
14. Cohen HA, Bekierkunst A: Topical treatment of Kaposi's sarcoma, basal cell carcinoma and solar keratosis with ointment of BCG and cord factor. *Dermatologica* 158:117-125, 1979.
15. Hymes KB, Greene JB, Marcus A, et al: Kaposi's sarcoma in homosexual men: Report of eight cases. *Lancet* 2:598-600, 1981.



*Seminars in  
Gastroenterology  
and Liver Disease*

## Campylobacter Enterocolitis

Michael S. Altman, M.D.

Editors:

George Burdick, M.D.

Stephen Glouberman, M.D.

Steven R. Kanner, M.D.

Robert Sanowski, M.D.

### Introduction:

Diarrheal illnesses account for approximately ten percent of ambulatory care visits.<sup>1</sup> Of those patients who present with diarrhea approximately five percent are caused by *Campylobacter Fetus* ssp *jepuni*.<sup>1</sup> This is a frequency which approximates that of *Shigella* and *Salmonella* combined.<sup>2</sup> It is interesting that a disease which occurs with such frequency often goes unrecognized. In most instances this is not of great clinical import because the disease is self-limited; however, in some cases, vide infra, recognition and treatment are critical. An exemplary case history is presented. This is followed by a discussion of the salient,

From: Southwest Medical Center, 1002 East McDowell Road, Suite A, Phoenix, Arizona 85006.

epidemiologic, bacteriologic, pathologic and clinical features.

#### Clinical Presentation:

A 34-year-old female presented with a history of profuse diarrhea of 48-hours duration. Her stools became bloody. She also complained of severe cramping, generalized abdominal pain and fever (104°). During the week preceding her acute illness she had experienced myalgias and malaise. She had *not* been exposed to any individuals with diarrhea, had contact with pets or livestock, been exposed to contaminated water, traveled outside Arizona, or taken any medications. Her family history was negative for inflammatory bowel disease and her past G.I. history was negative. Her occupation was nursing.

On physical examination the patient had a temperature of 99°. Abdominal examination revealed minimal generalized tenderness. Her bowel sounds were normo-active. There were no masses or hepatosplenomegaly. Rectal examination revealed no nodules, masses or tenderness. General examination revealed no rash or adenopathy.

CBC revealed a white count of 7,400; 49 segs; 12 stabs; 6 lymphs; 12 monos; 1 eo; hemoglobin 14.4; hematocrit 40%. Her liver profile and electrolytes were normal. Her sedimentation rate was 45. Stool examination revealed many polys and RBCs. O & P examination was negative.

Sigmoidoscopy was performed to 20 cm. The mucosa was diffusely abnormal and was characterized by friability, granularity, erythema and scattered superficial ulcerations (biopsy not performed at the patient's request).

The patient was initially treated symptomatically and showed gradual improvement over a 48-hour period. Initial stool for C & S revealed staphylococcus aureus; however a subsequent culture revealed a profuse growth of *Campylobacter Fetus*. The patient was treated with Erythromycin, 250 mg, qid, for a two week period with resolution of symptoms. Follow-up flexible sigmoidoscopy at three weeks revealed normal mucosa to 40 cm.

#### Epidemiology:

The epidemiology of *Campylobacter* is not completely understood. Cases have been traced to sources which include poultry, dogs, contaminated water, unpasteurized milk and other infected persons. By virtue of these exposures, the incidence is higher among farm-workers, butchers and abattoir workers.<sup>3,4</sup> There has also been noted to be an increased incidence of the disease among immunosuppressed and alcoholic patients.

There is a male preponderance (approximately 2/3). Individuals of all ages are affected with an especially high incidence in the pediatric age group of one to five years. Neonates born to infected mothers are prone to infection.<sup>3</sup>

#### Bacteriology:

The causative organism is a microaerophilic,

caprophilic gram negative bacillus.<sup>1,2</sup> *Campylobacter Fetus* has three sub-species (*Fetus*, *Intestinalis* and *Jejuni*). It is the *Jejuni* sub-species which is responsible for most cases of human enterocolitis.

Culture for this organism is not routinely performed and must be specifically requested. The key ingredients of the preparation are as follows: atmosphere - 10% carbon dioxide, 5% oxygen; temperature - 42°C; medium - Brucella agar + sheep red blood cells; antibiotics - Vancomycin, Trimethoprim, Polymyxin, Amphotericin and Cephalothin. These selective conditions allow for proliferation of *Campylobacter* and suppress other organisms. If the culture medium is not available at your laboratory, it should be requested.

#### Pathogenesis and Pathology:

It is hypothesized that the organism is ingested and subsequently invades the small bowel and colon. Endoscopic and autopsy series have revealed ulcerations of the jejunum, ileum and colon.<sup>2,4</sup> Biopsy of the colon often reveals a non-specific colitis characterized by acute inflammation of the lamina propria, superficial ulceration, goblet-cell depletion and crypt abscesses. Many of these features, of course, are seen in ulcerative colitis as well as other bacterial and parasitic forms of colitis.

#### Clinical Presentation:

The usual incubation period is three to five days. The typical clinical course is approximately the same duration; however, there are cases which may last as long as three weeks. As the case outlined above exemplifies, the typical clinical triad is fever, diarrhea (often bloody) and cramping abdominal pain.<sup>1,3,5</sup> It is not uncommon for patients to relate a history of a viral-like prodrome. Most often there is spontaneous resolution but there may also be complications.

*Campylobacter* may be responsible for a variety of clinical syndromes. Michalek et al described a patient who presented with massive lower gastrointestinal hemorrhage.<sup>6</sup> This patient initially presented with a diarrheal syndrome (*Campylobacter* cultured), which spontaneously resolved, then represented approximately two weeks later with profuse G.I. hemorrhage. She underwent angiography, and a lesion was localized in the ileocecal region. She subsequently had a right hemicolectomy with an end-to-end ileotransverse colostomy. The pathology revealed multiple ulcerations of the distal ileum and cecum. It was the author's conclusion that patients who present with this disease and are found to have *Campylobacter* should be treated with antibiotics to avoid this possible life-threatening complication. Targan et al reported a patient (cirrhotic) who was found to have spontaneous bacterial peritonitis due to *Campylobacter Fetus* (ssp *Intestinalis*).<sup>7</sup> The disease may be severe enough that patients develop bacteremia.<sup>8</sup> This finding supports the notion that the organism is tissue invasive. Loss et al stressed the point that patients may also present with segmental colonic ulcerative disease (in contrast to the



patient described above), which simulates Crohn's Disease.<sup>9</sup> Far more typical is the diffuse pattern which simulates ulcerative colitis. As in all patients with protracted diarrhea, sigmoidoscopic examination is crucial. The typical appearance is loss of vascular pattern, erythema, friability and possibly ulceration.<sup>1,5</sup> As noted above, this may be diffuse or patchy in its distribution. Biopsy reveals the non-specific features described above. Stool examination will reveal polyps in 80% of cases and RBCs in 60% of cases.<sup>1</sup> Barium enema should not be performed in the acute setting (increased risk of perforation). However, if performed, it reveals either a normal study or evidence of superficial ulceration, (pancolitis). Subsequent study several weeks later after antibiotic treatment will appear normal (possibly in contrast to ulcerative colitis.)

#### Treatment:

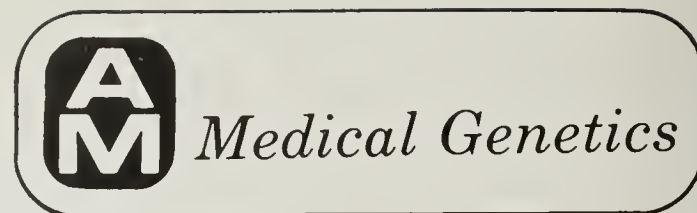
Treatment is obviously based upon accurate diagnosis. It is important that one consider amoebae, shigella, salmonella, Crohn's Disease and ulcerative colitis in the differential. With laboratory confirmation of *Campylobacter*, treatment should be implemented with Erythromycin (10% resistance).<sup>2</sup> The usual duration of therapy is seven to ten days. Alternatively Minocycline (5% resistance) may be used. These recommendations are not supported by clinical trial and may undergo revision; however, for the time being, they are reasonable. It is the feeling of some authors that patients with mild disease may not require therapy. However, other authors, *vide supra*, feel that all cases should be treated to prevent the rare but possibly life-threatening complications.

#### Summary:

In conclusion, it is important that *Campylobacter* be considered in the differential diagnosis of patients presenting with diarrhea. If sigmoidoscopic examination reveals evidence of colitis and routine C & S and O & P examinations are negative, special culture should be requested. Erythromycin is the current treatment of choice.

#### References

1. Blaser MJ, Berkowitz ID, LaForce M, Cravens J, Rellers B, Lou Wang WL: *Campylobacter* enteritis, clinical and epidemiologic features. *Ann Intern Med* 91:179-185, 1979.
2. Butzler JP, Skirrow MB: *Campylobacter* enteritis. *Clinics in Gastroenterology* 18:737-765, 1979.
3. Infections due to gram negative bacilli. "Campylobacter Enterocolitis." In: *Infectious Disease, Scientific American Medicine* Ch. 7:II 15-II 17, Rubenstein E, Federman D, (eds), Pub. N.Y., May 1981.
4. Blaser MJ, Parsons RB, Wang WL: Acute colitis caused by *Campylobacter fetus* ssp *jejuni*. *Gastroent* 78:448-453, 1980.
5. Lambert ME, Schofield PF, Ironside AG, Mandal BK: *Campylobacter* colitis. *Br Med J* 1:857-859, 1979.
6. Michalak DM, Perrault J, Gilchrist MJ, Dozios RR, Carney JA, Sheedy II PF: *Campylobacter fetus* ss *jejuni*: A cause of massive lower gastrointestinal hemorrhage. *Gastroent* 79:742-745, 1980.
7. Targan SR, Chow AW, Guze LB: Spontaneous peritonitis of cirrhosis due to *Campylobacter fetus*. *Dig Dis Sci* 24:950-956, 1979.
8. Longfield R, O'Donnel J, Yudit W, et al: Acute colitis and bacteremia due to *Campylobacter fetus*. *Dig Dis Sci* 24:950-956, 1979.
9. Loss RW Jr, Jagdish C, Mangla JC, Pereira M: *Campylobacter* colitis presenting as inflammatory bowel disease with segmental colonic ulcerations. *Gastroent* 79:139-140, 1980.



## Contemporary Management of Leukemia:

### Cytogenetic Diagnosis and Monitoring of Acute Leukemia and Preleukemia

Avery A. Sandberg, M.D.  
Frederick Hecht, M.D.  
Barbara K. McCaw, Ph.D.

Editor:  
Frederick Hecht, M.D.

#### Abstract

Contemporary diagnosis and management of acute leukemia and preleukemia are assisted by chromosome analysis. Bone marrow provides the best source of dividing cells in acute leukemia for chromosome analysis. These marrow cells have chromosomes often with a characteristic fuzziness. Low chromosome numbers tend to be associated with acute non-lymphocytic leukemia. Chromosome rearrangements are helpful in classifying the types of acute leukemia. A translocation between chromosomes 15 and 17 is found in acute promyelocytic leukemia, whereas a translocation between chromosome 8 and 21 is characteristic of the M<sub>2</sub> type of acute myelocytic leukemia. All cases of acute non-lymphocytic leukemia are now believed to have consistent chromosome markers. The accuracy of prognosis in acute leukemia is greater with chromosome information. Remission can be predicted, as can be relapse requiring further treatment. In patients with preleukemia, the onset of acute leukemia may be predicted by chromosome analysis and treatment can be initiated before the patient is acutely ill.

From: The Genetic Center and Cancer Research Center of the Southwest Biomedical Research Institute, 123 East University Drive, Tempe, Arizona 85281. Visiting Physician-Scientist, Avery A. Sandberg, M.D., permanent address: Roswell Park Memorial Institute, Buffalo, New York 14263. Supported in part by grants from the National Cancer Institute of the National Institutes of Health.

**Table 1**  
**Frequent Chromosome Changes in the Acute Leukemias (FAB Classification)**

| Designation                                                                                                                                                                                                                                                                                                                           | Type of Leukemia                                                          | Specific Chromosome Change | Number of Chromosome Changes** | Clone(s) in bone Marrow*** |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------|--------------------------------|----------------------------|
| <b>Acute non-lymphocytic leukemia</b>                                                                                                                                                                                                                                                                                                 |                                                                           |                            |                                |                            |
| 1                                                                                                                                                                                                                                                                                                                                     | Acute myeloblastic leukemia (AML) without maturation                      |                            | MIKA<br>MAKA                   | NN<br>AN<br>AA             |
| 2                                                                                                                                                                                                                                                                                                                                     | Acute myeloblastic leukemia (AML) with maturation and usually Auer bodies | t(8;21)                    | MIKA                           | AN                         |
| 3                                                                                                                                                                                                                                                                                                                                     | Acute promyelocytic leukemia (APL) usually with hypergranularity          | t(15;17)                   |                                |                            |
| 4                                                                                                                                                                                                                                                                                                                                     | Acute myelomonocytic leukemia (AMMoL)                                     | -21,r(21)<br>t(8;21)       | MIKA<br>MAKA                   | AN<br>AA<br>NN             |
| 5                                                                                                                                                                                                                                                                                                                                     | Acute monocytic leukemia (AMoL)                                           | Rearrangements of #11      | MIKA<br>MAKA                   | AN<br>AA<br>NN             |
| 6                                                                                                                                                                                                                                                                                                                                     | Acute erythroleukemia (EL)                                                |                            | MAKA                           | AA                         |
| <b>Acute lymphoblastic leukemia</b>                                                                                                                                                                                                                                                                                                   |                                                                           |                            |                                |                            |
| 1                                                                                                                                                                                                                                                                                                                                     | Acute lymphoblastic leukemia with small cells                             | t(4;11)                    |                                |                            |
| 2                                                                                                                                                                                                                                                                                                                                     | Acute lymphoblastic leukemia                                              | t(4;11)                    | Near haploidy                  |                            |
| 3                                                                                                                                                                                                                                                                                                                                     | Acute lymphoblastic leukemia with Burkitt lymphoma                        | t(8;14)                    |                                |                            |
| *: t = translocation; - = missing chromosome; r = ring<br>**: MIKA = <b>MI</b> nor <b>K</b> aryotype <b>A</b> bnormalities; MAKA = <b>MA</b> ajor <b>K</b> aryotype <b>A</b> bnormalities<br>***: NN = Entirely Normal cells; AN = mixture of chromosomally <b>A</b> bnormal and Normal cells<br>AA = Entirely <b>A</b> bnormal cells |                                                                           |                            |                                |                            |

This paper deals with *acute leukemias* (AL). It underscores the value of cytogenetic studies in the diagnosis, management and particularly therapy of patients with acute leukemia. This paper is of relevance to all age ranges, since both children and adults may develop acute leukemia.

### Classification of Acute Leukemias (AL)

The acute leukemias can be divided into two major categories, according to cell type:

1. Acute non-lymphocytic leukemias (ANLL) and
2. Acute lymphoblastic leukemias (ALL).

A few rare cases do not fit into either category, but the overwhelming majority of cases are ANLL or ALL. Most leukemia in children is ALL.

### Chromosome Abnormalities in Acute Leukemias (AL)

In the 1960's it was thought that the acute leukemias (AL) were not marked by characteristic chromosome abnormalities. This is now recognized as incorrect: at least fifty percent of acute leukemia patients have chromosomal changes. These chromosome changes are seen in the leukemia cells.

The best source of leukemic cells dividing in AL is bone marrow. AL cells in blood tend not to divide and so are poorly suited for chromosome analysis. The information from bone marrow has direct relevance to the cytogenetic classification of acute leukemias.

### Obtaining Bone Marrow in AL

The key step in chromosome analysis in AL is to obtain 0.5-1.5 ml. of bone marrow by aspiration. The ideal anticoagulant for the marrow specimen is heparin. Expeditious examination of the marrow sample at room temperature is optimal. Marrow samples must be received the same day as aspirated or the next day in the laboratory.

### Accompanying Blood Samples and Slides

A sample of heparinized peripheral blood should accompany the bone marrow sample to the laboratory. This blood sample permits examination of chromosomes in lymphocytes cultured for 48-72 hours with the lymphocyte-stimulant phytohemagglutinin. Blood also permits the laboratory to examine chromosomes in non-lymphocytes cultured for a like period of time without stimulants.

The relevant clinical and hematologic data assist in the final diagnosis, as does a slide of the bone marrow cells. Data plus a slide should be sent to the laboratory.

### Chromosome Changes in AL (Table 1)

The characteristic chromosome rearrangements found in AL include:

1. *Acute myeloblastic leukemia* (AML): a translocation between chromosomes 8 and 21 (Figure 1). This anomaly is present in 10%-15% of AML patients and



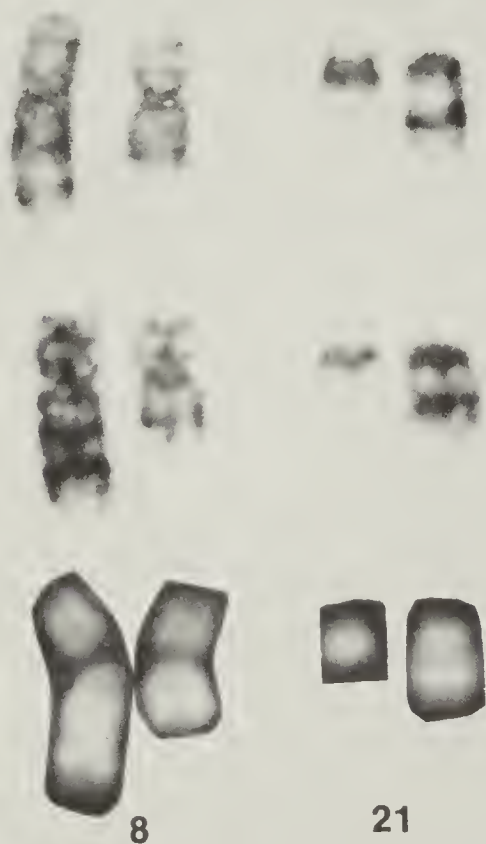


Figure 1

Partial karyotypes of leukemic cells with a translocation between chromosomes No. 8 and No. 21. This type of chromosomal change usually seen in ANLL carries with it a relatively good prognosis.

accompanies the M<sub>2</sub> type of AML with cell maturation.

2. *Acute promyelocytic leukemia* (APL): a translocation between chromosomes 15 and 17 (Figure 2).

3. *Acute lymphoblastic leukemia* (ALL): a translocation between chromosomes 4 and 11 or between chromosomes 8 and 14.

In addition to these translocations, other characteristic chromosome changes in AL include:

1. *Acute myeloblastic leukemia* (AML):

(a) Partial or complete trisomy of chromosome 1 (usually the long arm [q]).

(b) Loss of an entire chromosome 7 or 21.

(c) Loss of a sex chromosome: X or Y.

(d) Gain of an entire chromosome 8 or 21.

2. *Acute Lymphoblastic Leukemia* (ALL):

(a) Changes (in order of frequency) in chromosomes 14, 11, 4, 8, 1, 6 and 9.

(b) Loss of part of the 6 long arm: 6q-.

(c) Translocations of the 1 long arm: 1q.

#### Modal Chromosome Number in AL

The modal chromosome number, that is the most frequently observed chromosome number per cell, is

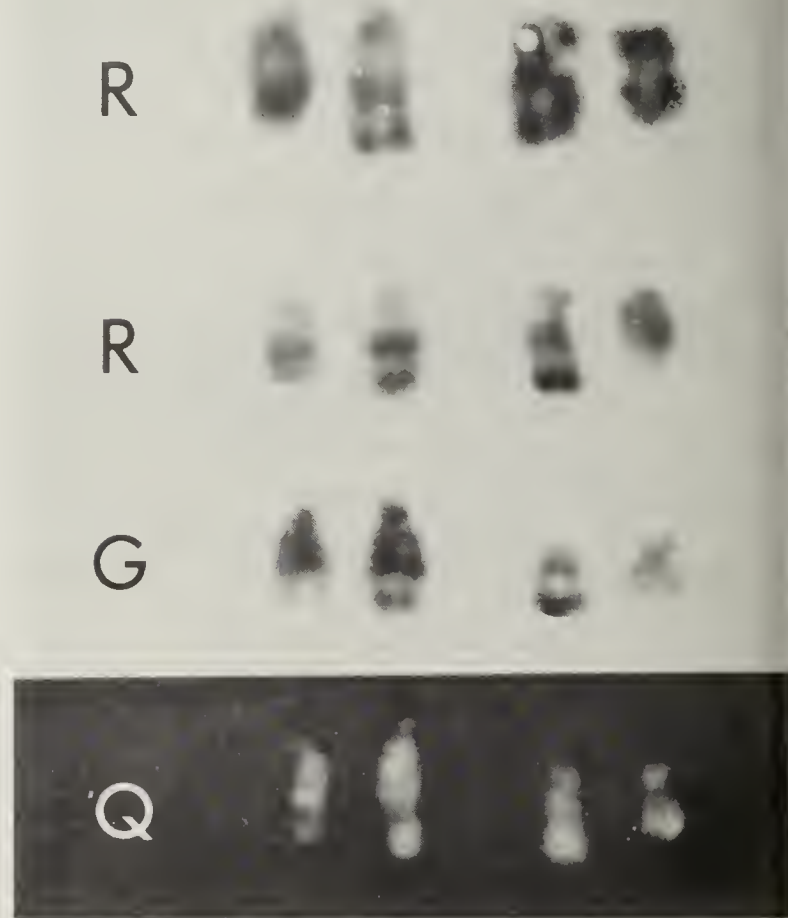


Figure 2

Characteristic chromosomal change in acute promyelocytic leukemia (APL) showing a translocation between chromosomes No. 15 and No. 17. Taken from *The Second International Workshop on Chromosomes in Leukemia: Cancer Genet. Cytogenet.* 2:106, 1980.

diagnostically also important in AL (Figure 3). In AML the modal chromosome number is usually diploid (46 chromosomes), near diploid or *hypodiploid*. In ALL the modal chromosome number is oftentimes above 46 chromosomes, sometimes even above 56 chromosomes.

#### Appearance of Chromosomes in AL

An interesting and provocative feature of leukemic chromosomes is their fuzzy appearance. The chromosomes are ill-defined (Figure 4). Even though this feature may be encountered in some cancers (and not all acute leukemias show this unique morphologic aspect of chromosomes), the incidence of ill-defined and fuzzy chromosomes in acute leukemia is sufficiently high to be of diagnostic value. This fuzziness will prevent suitable banding of the chromosomes and, thus, complicate the rigorous identification of individual chromosomes with banding techniques. The cause (or causes) for this unique appearance of acute leukemic chromosomes is unknown. The reappearance of cells with fuzzy chromosomes in a case of acute leukemia in complete remission indicates imminent relapse.

#### Chromosome Changes during Remission and Relapse

Chromosomally abnormal cells disappear from the marrow when complete remission of the acute leukemia is achieved. The reappearance of even a rare cell with chromosome abnormalities (in almost all cases these

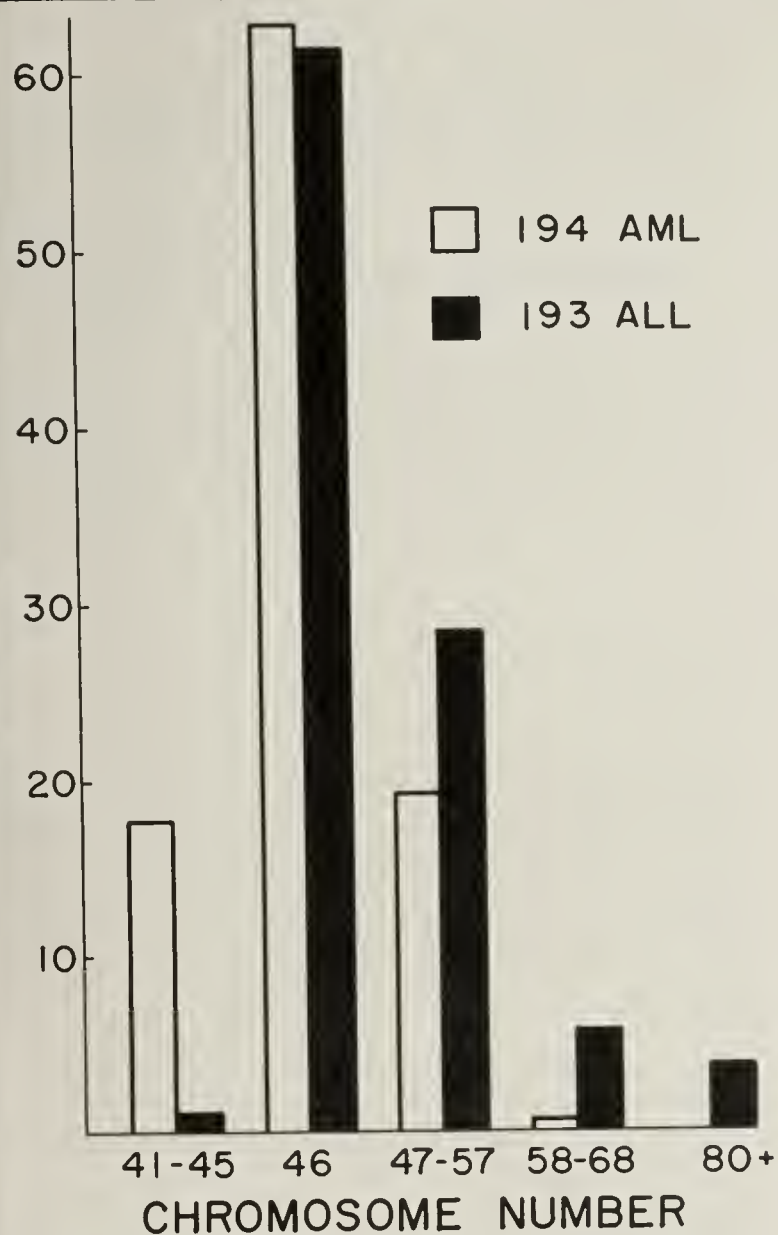


Figure 3

Modal chromosome number in acute myeloblastic leukemia (AML) and acute lymphoblastic leukemia (ALL) with chromosomal changes. The latter are present in at least 50% of all acute leukemia. Hypodiploidy appears to be rare in ALL; in AML the number may be hyperdiploid, pseudodiploid or hypodiploid. The cases shown with 46 chromosomes had pseudodiploid chromosome constitutions. Although the number was diploid (normal), the distribution and/or morphology of the chromosomes was abnormal.

Abnormalities are of the same variety as those seen at diagnosis) is indicative of imminent relapse. Chromosome abnormalities precede and accompany relapse in acute nonlymphocytic leukemia.

#### Philadelphia (Ph<sup>1</sup>) Chromosome in Acute Leukemia

In acute leukemia, the Ph<sup>1</sup> is usually found in less than 100% of the cells (in contrast to CML, where 100% of the marrow cells usually have the Ph<sup>1</sup>). The presence of a Ph<sup>1</sup> in acute leukemia is usually associated with a much shorter survival. In ANLL survival with the Ph<sup>1</sup> averages eight months versus only two months without the Ph<sup>1</sup>, whereas in ALL survival with the Ph<sup>1</sup> averages 50 months (4 years, 2 months) versus only ten months without the Ph<sup>1</sup> chromosome.

#### Clinical and Prognostic Implications of Chromosome Changes in AL

Cytogenetic examination can be of help to the clinician

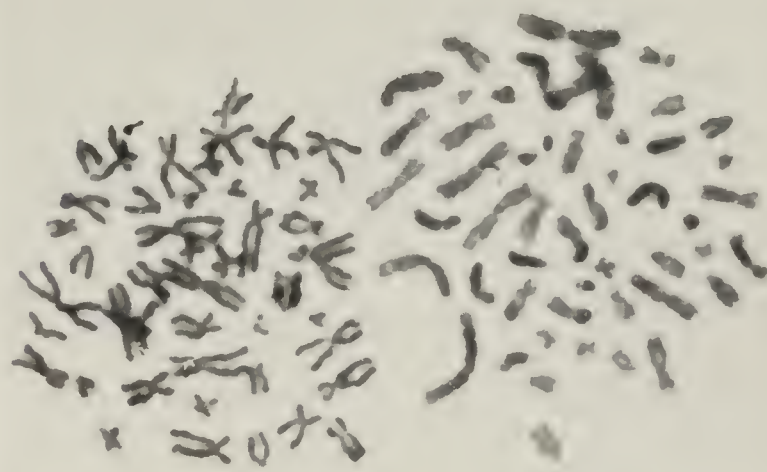


Figure 4

Two metaphases from the marrow of a patient with ALL. The normal metaphase on the left consists of chromosomes with thin and well-defined chromatids, whereas the leukemic metaphase on the right shows fuzzy chromosomes with poor definition of the chromatids. This fuzzy appearance of the chromosomes is frequent in acute leukemia.

Table 2  
Cytogenetic Findings Indicative of Poor Prognosis in Acute Leukemia

|                                       | Acute non-lymphocytic leukemia | Acute lymphocytic leukemia |
|---------------------------------------|--------------------------------|----------------------------|
| Presence of a Ph <sup>1</sup>         | +                              | ALL                        |
| t(4;11)                               | -                              | +                          |
| Near-haploidy                         | -                              | +                          |
| Major karyotypic abnormalities (MAKA) | -                              | ?                          |
| Presence of double minutes (DMS)      | +                              |                            |
| AA (all metaphases abnormal)          | +                              | ?                          |

in several respects. The prognostic implications of some chromosome changes are shown in Tables 2 and 3. The presence of a Ph<sup>1</sup>-chromosome carries a poor prognosis in acute leukemia. This contrasts with the situation in CML, where the presence of a Ph<sup>1</sup> endows the disease with a much longer median survival. In ALL the presence of a translocation (Figure 5) between chromosome No. 4 and No. 11 is associated with a rather poor prognosis, as in a near-haploid number of chromosomes.

A key cytogenetic parameter related to prognosis in acute leukemia is the presence or absence of cytogenetically normal cells in the marrow (Table 4). The total absence of normal cells throughout the course of the acute leukemia (AA-cases) leads to a very short survival, possibly related to the absence of normal cells in the marrow capable of repopulating it when the



Table 3  
Cytogenetic Findings Indicative of  
Favorable Prognosis in Acute Leukemia

|                                                             | Acute non-<br>lymphocytic<br>leukemia | Acute<br>lymphocytic<br>leukemia |
|-------------------------------------------------------------|---------------------------------------|----------------------------------|
| Presence of<br>cytogenetically<br>normal cells (N or<br>AN) | +                                     | +                                |
| t(8;21), usually M2<br>with Auer rods                       | +                                     | -                                |
| t(8;14), L3 type                                            | -                                     | +                                |
| Minor karyotypic<br>abnormalities<br>(MIKA)                 | +                                     | -                                |

Table 4  
Median Survival (In Months) in ANLL According to  
the Types of Karyotypes

| NN   | AN   | AA  | Reference*                                                        |
|------|------|-----|-------------------------------------------------------------------|
| 9.0  | 8.0  | 3.0 | Golomb et al. (1978)                                              |
| 8.0  | 2.5  | 1.0 | Nilsson et al. (1977)                                             |
| 11.5 | 10.3 | 3.1 | Sakurai & Sandberg (1973)                                         |
| 3.0  | 2.7  | 2.5 | Fitzgerald & Hamer (1976)                                         |
| 6.0  | 5.0  | 4.0 | First International Workshop on<br>Chromosomes in Leukemia (1977) |

NN = Cases of acute leukemia with only cytogenetically normal cells throughout the course of the disease.

AA = Cases of acute leukemia with only cytogenetically abnormal cells throughout the course of the disease.

AN = Cases of acute leukemia with both normal and abnormal cells.

\*For reference citations see Sandberg (1) in References

leukemic cells have responded to chemotherapy. AA-cases would be prime candidates for bone marrow transplantation, once this procedure becomes more successful in acute leukemia. On the other hand, AN- and NN-cases of acute leukemia have a significantly longer survival, which may be related to their ability to repopulate the marrow with normal elements after therapy.

NN, AN and AA should also be considered in relative terms. If a very large number of metaphases are examined, for example, more than 1000, it is possible to encounter a rare cell which deviates from all others. The prognostic implications appear to apply equally to all cases.

A further cytogenetic parameter affecting the biologic behavior of acute leukemia is the number of individual chromosomal changes present in the leukemic cells. Thus, if the cells contain 1-2 cytogenetic events, the disease is usually associated with maturation of the



Figure 5  
Translocation involving chromosomes No. 4 and No. 11 in case of ALL. This karyocytic change appears to carry with it poor prognosis.

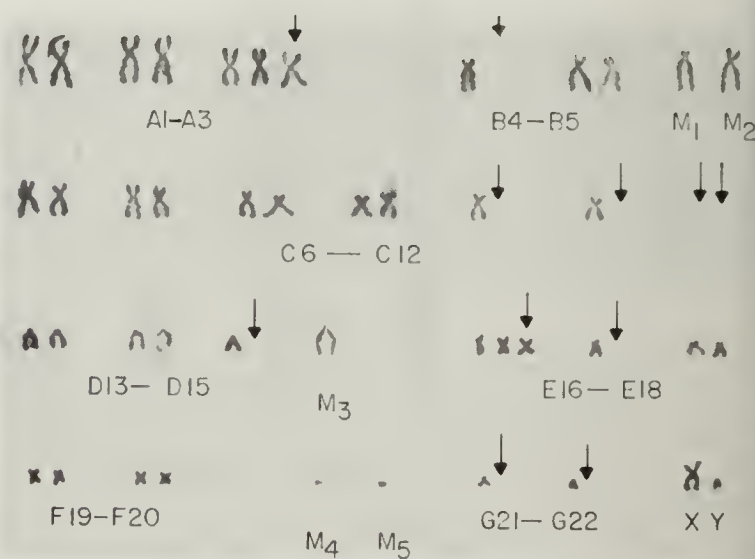


Figure 6  
Karyotype of leukemic cells from a case of ANLL showing MAKa (major karyotypic abnormalities) with at least 11 changes. When only 1-2 such changes are present, the karyotypic picture is described as MIKA (minor karyotypic abnormalities).

leukemic cells, a good response to therapy and relatively long survival. On the other hand, acute leukemia associated with more than two cytogenetic events are usually associated with immaturity of the leukemic cells, poor survival and, more often than not, the presence of an acute erythroleukemia (Figure 6).

The terms MIKA and MAKa have been devised in this regard. MIKA means Minor Karyotype Abnormalities, MAKa means MAJOR Karyotype Abnormalities. As indicated, MIKA suggests a more favorable prognosis than MAKa.

### Chromosomes in Preleukemia

In preleukemia, chromosome analysis is of value. About half of the patients with preleukemia have abnormal karyotypes in their marrow. Survival is significantly longer in those patients with preleukemia who have normal karyotypes. The cause of death in these cases is distributed evenly between ANLL and other causes. The chromosome changes seen in

preleukemia are essentially those seen in ANLL: +8, -7, q-, -5 or 5q-, though the latter changes appear to be more frequent in preleukemia than ANLL. Progression of the preleukemia to ANLL seems to occur more often in cases with abnormal karyotypes. However, karyotypic progression has not always been associated with development of ANLL.

#### **Cytogenetic Monitoring of AL and Preleukemia**

How often should a marrow be examined cytogenetically in acute leukemia or preleukemia? Even though generally accepted criteria for complete remission in acute leukemia include a level of blasts up to five percent, cytogenetic analysis under these circumstances may continue to reveal leukemia cells with abnormal karyotypes indicative of persistence of the disease in the marrow.

Our *recommendation in acute leukemia* is to examine the marrow until all cytogenetically abnormal cells have disappeared. Subsequently, the marrow should be examined whenever aspiration samples are obtained for other purposes and certainly whenever suspicion of possible imminent relapse of the disease is suspected. If only an occasional cytogenetically abnormal cell is encountered, indicative of imminent relapse, it may be worthwhile to re-examine the marrow at five to seven day intervals in order to ascertain whether their numbers are increasing. Such information is crucial in considering appropriate therapy.

Our *recommendation in preleukemia* is to monitor the marrow cells cytogenetically whenever a change in the clinical or laboratory findings has occurred. When the disease is considered to be stable, it may be worthwhile to have the marrow examined at three-month intervals to ascertain whether changes have occurred in the karyotype. If a change is encountered, it is advisable to re-examine the marrow at weekly intervals in order to ascertain the rate at which the change is occurring or whether it has become stabilized. When a karyotypic change does occur in preleukemia, the possibility of an impending acute leukemia should definitely be raised. However, it should be pointed out that not all cases of preleukemia developing new chromosomal abnormalities necessarily have a concomitant acute leukemic process. In this the clinician must take into consideration the findings in the marrow, blood and the clinical aspects of the patient.

#### **Do All Cases of ANLL have Karyotype Abnormalities?**

It now appears that all cases of ANLL have karyotype abnormalities. If a chromosome abnormality is located by routine cytogenetic studies, as outlined above, this is sufficient. If, however, no abnormality is detected on routine chromosome analysis, high resolution chromosome analysis should be done on cells from bone marrow which are amethopterin-synchronized in the laboratory. ANLL is, it is now coming clear, a clonal malignancy with a characteristic chromosome marker in virtually every case.

#### **References**

1. Sandberg AA: *The Chromosomes in Human Cancer and Leukemia*. Elsevier North-Holland, New York, 1980.
2. Second International Workshop on Chromosomes in Leukemia. *Cancer Genet. Cytogenet.* 1:89-113, 1980.
3. Third International Workshop on Chromosomes in Leukemia. *Cancer Genet. Cytogenet.* (In Press), 1981.
4. Yunis JJ, Bloomfield CD, Ensrud K: All patients with acute nonlymphocytic leukemia may have a chromosomal defect. *New Eng J Med* 305:135-139, 1981.





## **Beta<sub>2</sub>-Microglobulin: A Potentially Useful Marker For Hematologic Malignancies**

Harinder Garewal, M.D., Ph.D.  
Brian G. M. Durie, M.D.

Editors:  
David S. Alberts, M.D.  
Ellen M. Chase, B.S.

### **Introduction**

During the course of investigations of macromolecules present in human urine, Berggard isolated a low-molecular-weight protein, which he named beta<sub>2</sub>-microglobulin, from the urine of patients with tubular proteinuria.<sup>1</sup> Since then, an impressive amount of information about its structure, possible function, and potential role in the monitoring of malignant disease has been accumulated mainly by European investigators. In the management of cancer patients, the major usefulness of this protein appears to be in the area of hematologic malignancy. In this article, we will attempt to summarize some of the more important information in this area and suggest avenues for further exploration and research.

### **Properties and Distribution**

Beta<sub>2</sub>-microglobulin is a single polypeptide chain devoid of carbohydrate. It forms the light chain of the HLA antigen and is present on the surface of all nucleated cells. It is present in different concentrations in the serum and virtually all body fluids. The source appears to be turnover of the HLA antigen.<sup>2</sup> Normally, beta<sub>2</sub>-microglobulin is almost exclusively cleared by the kidneys. Less than one percent of the total removal of this protein is likely to occur through extra-renal pathways. A very reliable and sensitive

radioimmunoassay is available for beta<sub>2</sub>-microglobulin levels in body fluids or tissue extract.<sup>3</sup> A solid-phase radioimmunoassay is now commercially available (Phadebas, Pharmacia Diagnostics, Uppsala, Sweden). Serum levels in normal subjects without renal failure are initially below three mg per liter. The level rises gradually with age, perhaps as a result of the gradual decrease in glomerular filtration that occurs with age. The concentration rises as the glomerular filtration rate falls. Equations are available for adjusting values in renal failure.<sup>5,6</sup>

### **Levels in Non-Malignant Disease**

Increased levels of beta<sub>2</sub>-microglobulin have been found in a few non-malignant diseases without renal dysfunction.<sup>7</sup> These include chronic inflammatory diseases such as rheumatoid arthritis, systemic lupus erythematosus and Sjögren's syndrome. Elevated levels have also been reported in active liver disease.<sup>8</sup> The role of beta<sub>2</sub>-microglobulin determinations in the clinical management of these patients requires further investigation.

### **Levels in Malignant Diseases**

An elevated serum beta<sub>2</sub>-microglobulin level is occasionally found in advanced carcinomas.<sup>9</sup> This is, however, not a constant phenomenon, and appears not to be related to the progress of the cancer. The relationship of beta<sub>2</sub>-microglobulin to other solid tumor markers, such as the carcinoembryonic antigen (CEA),

From: Section of Hematology-Oncology and The Cancer Center, College of Medicine, University of Arizona, Tucson, Arizona 85724.

has been studied. Although both proteins are frequently elevated in patients with advanced cancer, a direct correlation between the two markers does not appear to exist. The CEA level is elevated more often than the beta<sub>2</sub>-microglobulin level.

In contrast to the non-hematologic malignancies, serum concentrations of beta<sub>2</sub>-microglobulin appear to be of immense potential clinical importance in hematologic malignancies. Increased serum beta<sub>2</sub>-microglobulin levels have been found in patients with disorders characterized by a proliferation of lymphoid B cells such as chronic lymphocytic leukemia, B-cell lymphomas, multiple myeloma, and angioimmunoblastic lymphadenopathy. Changes in serum concentration of beta<sub>2</sub>-microglobulin are independent of other acute phase reactants and erythrocyte sedimentation rate.<sup>10</sup>

In chronic lymphocytic leukemia the concentration appears to relate to the clinical stage in the untreated state. For instance, in one study the ranges were 0.2-2.8 mg per liter in Stages 1 and 2, 2.7-5.3 mg per liter in Stages 2 and 3, and 4.4-16.9 mg per liter in Stages 3 and 4.<sup>11</sup> The levels do not correlate with the peripheral lymphocyte count, but do appear to change with the evolution of the disease, progression, and, possibly, response to treatment.

The malignant lymphomas constitute a spectrum of diseases. Consequently, the situation is more complicated with respect to the significance of beta<sub>2</sub>-microglobulin levels. In non-Hodgkin's lymphoma, high concentrations of beta<sub>2</sub>-microglobulin have been found in the subtypes with poor prognosis and correlate with survival.<sup>10</sup> The prognostic significance of an elevated level in a patient with lymphoma in remission remains to be determined. In Hodgkin's disease, the levels increase with the stage of the tumor, but this is not a consistent finding.<sup>10</sup>

Central nervous system involvement is a frequent complication in leukemia and lymphoma. Although peripheral levels are not usually markedly elevated in the acute leukemias, a recent report from Boston indicated that cerebrospinal fluid (CSF) levels, and the ratio between the CSF level and serum concentration of beta<sub>2</sub>-microglobulin, were higher in patients with central nervous system involvement.<sup>12</sup>

In multiple myeloma the serum beta<sub>2</sub>-microglobulin level is usually elevated.<sup>13</sup> The levels can be very high (>15 mg/L) even with normal renal function. In contrast, levels in benign monoclonal gammopathy (BMG) are usually not elevated. A significantly elevated level would, therefore, appear to make a diagnosis of BMG very improbable. However, more data are needed to adequately define discriminant levels. Preliminary data also suggest a correlation between the serum level of beta<sub>2</sub>-microglobulin and myeloma cell mass as measured using the methods of Durie and Salmon.<sup>14,15</sup> In this context, the initial level appears to be of prognostic significance. In one series of 37 patients, those with

initial levels less than 4 mg/L had a median survival of 46 months, whereas those with an initial level >4 mg/L had a median survival of 15 months.<sup>14</sup> The level did not correlate with the amount of paraprotein or its class. Perhaps the beta<sub>2</sub>-microglobulin level might provide a better stratification of patients with this disease than the serum or urine paraprotein concentrations. As could be anticipated, the beta<sub>2</sub>-microglobulin determination is most useful in patients who have normal renal function. In patients with light chain disease or with no detectable abnormal protein it could provide an easily measurable marker of disease activity and stage.

Relatively few studies on beta<sub>2</sub>-microglobulin have originated in the United States and it appears that the potential importance of this protein has not been fully appreciated in North America. However, from the preliminary studies reported, it appears that beta<sub>2</sub>-microglobulin will be a useful addition to the currently used parameters for stage and activity of the B-cell hematologic malignancies. Larger studies involving longterm follow-up of patients are needed to precisely define its value and limitations in prognostic stratification, relationship to disease activity, and monitoring of treatment response.

#### References

1. Berggard I, Bearn AG: Isolation and properties of a low molecular weight beta<sub>2</sub>-microglobulin occurring in human biological fluids. *J Biol Chem* 243:4095, 1968.
2. Berggard B, Bjork L, Cigen R, Logdberg L: Beta<sub>2</sub>-microglobulin. *Scand J Clin Lab Invest* 40, Suppl 154:13, 1980.
3. Evrin PE, Petersen PA, Wide L, Berggard I: Radioimmunoassay of beta<sub>2</sub>-microglobulin in human biological fluids. *Scand J Clin Lab Invest* 28:439, 1971.
4. Evrin PE, Wibell L: The serum levels and urinary excretion of beta<sub>2</sub>-microglobulin in apparently healthy subjects. *Scand J Clin Lab Invest* 29:69, 1972.
5. Cassuto PP, Krebs BP, Viot G, et al: Beta<sub>2</sub>-microglobulin, a tumor marker of lymphoproliferation disorders. *Lancet* ii:108, 1978.
6. Wibell L, Evrin PE, Berggard I: Serum beta<sub>2</sub>-microglobulin in renal disease. *Nephron* 10:320, 1973.
7. Evrin PE, Wibell L: Serum beta<sub>2</sub>-microglobulin in various disorders. *Clinica Chim Acta* 43:183, 1973.
8. Beorchia S, Vincent C, Revillard, JP, Trepo C: *Clinica Chimica Acta* 109:245, 1981.
9. Teasdale C, Mander AM, Fifield R, et al: Serum beta<sub>2</sub>-microglobulin in controls and cancer patients. *Clinica Chimica Acta* 78:135, 1977.
10. Child JA, Spati B, Illingworth S, et al: Serum beta<sub>2</sub>-microglobulin and C-reactive protein in the monitoring of lymphomas. Findings in a multicenter study and experience in selected patients. *Cancer* 45:318, 1980.
11. Spati B, Child JA, Kerruish SM, Cooper EH: Behaviour of serum beta<sub>2</sub>-microglobulin and acute phase reactant proteins in chronic lymphocytic leukemia. *Acta Hematol* 64:79, 1980.
12. Mavligit GM, Stuckey SE, Cabanillas F, et al: Diagnosis of leukemia or lymphoma in the central nervous system by beta<sub>2</sub>-microglobulin determination. *N Engl J Med* 303:718, 1980.
13. Morell A, Riesen W: Serum beta<sub>2</sub>-microglobulin, serum creatinine and bone marrow plasma cells in benign and malignant monoclonal gammopathy. *Acta Hematol* 64:87, 1980.
14. Norfolk D, Child JA, Cooper EH, et al: Serum beta<sub>2</sub>-microglobulin in myelomatosis: Potential value in stratification. *Br J Cancer* 39:510, 1979.
15. Durie BGM, Salmon SE: A clinical staging system for multiple myeloma: Correlation of measured myeloma cell mass with presenting clinical features, response to treatment, and survival. *Cancer* 36:842, 1975.





## Psychiatric Disorders

# Threshold of Pain

William B. McGrath, M.D.

Editor:  
Thomas E. Bittker, M.D.

People speak of "the threshold of pain." Implied is the assumption that a given painful stimulus might hurt one person more than it does another.

Such is probably not so; or anyway we have no way of knowing. All that can be measured is not pain but the individual's reaction to pain, his visible recoil or his verbal protest.

Willingness to bear suffering of any kind is determined only in part by its proximate or apparent cause. What might appear to be a high tolerance of pain may rather be a simple matter of dignity, a resolution to be stoical and silent.

In this matter there may be epochal and cultural predilections: for example, the unrestrained wailing and rending of garments by Old Testament prophets, or the wordless keening of certain folk in bereavement.

Individual toughness may be almost constitutional. The golden mean applies. During developmental years abuse and deprivation, if too severe, will stunt the character to rodent dimensions of furtiveness and squealing. On the other hand pampering and overindulgence will bloat and soften any tolerance of frustration and pain.

In some families and neighborhoods people are taught that there is weakness or disadvantage in being a good sport and uncomplaining. Similarly the bullied younger sibling or the member of a minority may cry loudly *before* getting hurt — a kind of anticipatory or preemptive protest. Or the apparent threshold of pain will be influenced by the proximity of an audience to be made to feel sorry or from whom to solicit sympathy and comfort.

The person whose visible suffering is too horrible for us to imagine (the quadriplegic, the severely burned, the dying) will learn not to expect any real or sustained sympathy. If we cannot literally suffer with (compassion) then we will turn away. Isolated in unutterable sadness these patients are sometimes too tired and hopeless to complain.

In evaluating and caring for a person who appears to be in pain, there is another issue more important than all the rest. *Inability to describe one's condition is a disastrous invitation to dehumanizing treatment.* When a helpless individual can utter no protest, then none will be imagined or heeded! Such occurs in some cases of stroke or head injury or when a patient has a tracheotomy or is on a respirator.

All of us have at times been guilty of brutal and insensitive treatment of those who cannot complain, cannot communicate. One recalls with mortification a spinal puncture done without local anesthetic because the patient was a mute catatonic. (Every nurse and paramedic has been taught to pile blankets on the accident victim who is going into shock, as if the blankets had some intrinsic warmth to compensate for the patient's impaired ability to generate body heat. One had as well put a cloak on a corpse!)

Patients are sometimes dying from the exhaustion of sleeplessness and intolerable pain and unspeakable terror. Yet some physicians and surgeons take a smug pride in their unwillingness to prescribe anything for even temporary relief from suffering. Indulging their impersonal preoccupation with vital signs and blood chemistries, they rationalize that they must never depress respiration or mask symptoms.

We find some sense of security in emphasizing that our work is scientific. Without realizing it we are quite resistant to any contrary consideration. What a silly conceit!

The preponderant concerns of medicine are often

From: 4910 North 44th Street, Phoenix, Arizona 85018.

## Case of the Month No. 53

Samuel L. Cohen, M.D.  
Ted Szablewski, R.T.

Editors:  
Jonathan Levy, M.D.  
Gerald Pond, M.D.

beyond or outside objective or scientific demonstration. Consider such states or processes as pain and fear and joy and sorrow; worry and a hundred different attitudes and expectations and regrets; love and hate and care; pride or humiliation; courage or cowardice; hope or disappointment or despair.

In any of these contexts, terms such as weighing or measuring are metaphorical and often misleading. A mental state cannot be weighed, cannot be measured. Any mental state is subjective. By definition it can be perceived only by the person who is experiencing it. Anything subjective cannot be externalized or compared or validated or observed by a second person or by any instrument known to man. In the last analysis, whatever the cause, *all suffering is mental!*

Our colleagues used to be mindful of this, that suffering is mental. So they expected psychiatry to make a unique and lifesaving contribution to the understanding and treatment of the very ill.

We do not have reference to so-called pain clinics or stress centers with their group therapies and biofeedback and behavior modifications. These are for the chronically impaired with high percentages of psychosomatic disorders. They cannot fail at times to portray psychiatry as inconsequential, as somehow sterile and effete.

To the contrary, psychiatry had an expertise and even a kind of authority in helping take care of patients whose anguish had begun to weaken their grip on reality and on life itself. Older physicians will remember asking for guidance in preventing the fatal delirium of the polio victim in the iron lung. We ordered tincture of opium for a few days until the defenseless older person could cope with the terrifying darkness of cataract operations or the immobilization and sensory deprivation of orthopedic surgeries. We used to be called quite commonly when cardiac or pulmonary or renal failure was choking an individual and confronting him with imminent death.

We can hardly keep track of the advanced and sophisticated technologies of medicine and surgery. In certain critical areas they still cannot replace the observations of a skilled psychiatrist. Vital signs and the laboratory can tell the internist or surgeon a lot. They cannot tell when a patient's endurance has been stretched to the breaking point.

An 84-year-old nursing home patient has a cough, chills and fever. A postero-anterior (AP) chest film is done in the nursing home (Figure 1), and brought to you. Because of the patient's condition, a lateral portable film is impossible.

What would you do?  
What is the diagnosis?

*Continued on next page*



Figure 1

From: 800 North First Avenue, Phoenix, Arizona 85003, Dr. Cohen and the Medical Portable X-ray Service, Dr. Szablewski.





Figure 2



Figure 3

## ANSWER:

### Oblique portable chest films.

#### Left lower lobe pneumonia.

Transportation of patients from nursing homes to the hospital for x-rays can be difficult and expensive. Portable x-ray services provide a more efficient method of obtaining chest films in the nursing home environment. Because of the limitations of the equipment used, a single PA or AP film of the chest is usually obtained. Portable lateral chest films are technically difficult to produce, and often are not of sufficient quality of accurate interpretation. When the

AP film is equivocal, or suggests an abnormality, oblique chest films can be of help.

The oblique films are taken in AP position, with the patient rotated 30 degrees in each direction. (Figure 2 and 3). The films can be done with the patient sitting in bed, propped against the radiographic cassette. In our patient, the AP chest film showed no obvious abnormality. However, a left lower lobe pneumonia can be seen on one of the oblique films. (Figure 2)

Oblique chest films may also be useful in medical and surgical critical care units, and in any circumstance where only portable x-ray equipment is available, or the patient is too ill to be brought to the x-ray department. This technique is helpful in solving problems in those patients who cannot have routine PA and lateral chest films.



# Cardiac Transplantation, The Arizona Experience

Jack G. Copeland, M.D.  
Jeal W. Salomon, M.D.  
Robert B. Mammana, M.D.  
Karen A. Siroky, R.N., B.S.N.  
Douglas F. Larson, M.S.

Editor:  
Jack Friedland, M.D.

## Abstract

The methods and results of a new cardiac transplantation program are summarized for the first two years. Nine of twelve patients are surviving. The actuarial one-year survival was 72 percent. Complications have been observed primarily in the first three post transplant months including 1.2 rejections per patient and 1.1 infections per patient. Of the three deaths, two have resulted from inadequate donor heart function and one from infection. The average first-year cost has been about \$50,000 per patient.

## Cardiac Transplantation — Two-Year-Report of New Program

### Introduction

On March 27, 1979, we began a cardiac transplantation program at the Arizona Health Sciences Center. Our motivation derived from the improved survival statistics for cardiac transplantation at Stanford University with one-year survival rate of 60 to 65 percent since 1975 and a five-year rate of about 50 percent.<sup>1</sup> Our experience as of March 1, 1981, included 12 heart transplants, the basis for this report.

From: Arizona Health Science Center, Department of Cardiovascular and Thoracic Surgery, Room 4402, Tucson, Arizona 85724.

## Recipient Selection

Fifty-one patients were referred as possible recipients including 47 males and 4 females varying from 20 to 58 years of age. Thirty were from the state of Arizona and 21 from out of state. Diagnostic categories included ischemic cardiomyopathy 26, idiopathic cardiomyopathy 17, and viral cardiomyopathy 8. Eighteen patients met our criteria for selection as potential recipients (see Table 1), 12 were transplanted, three died waiting for donor hearts, two were awaiting transplantation, and one improved spontaneously and was removed from potential recipient status.

Table 1  
Selection Criteria for Potential Recipients  
Arizona Health Sciences Center

Terminal cardiac disease with prognosis for survival of less than 12 months.  
Age 55 years or less.  
Pulmonary vascular resistance less than 8 wood units.  
Absence of insulin requiring diabetes mellitus.  
Absence of disease process which might limit survival after heart transplant.  
Absence of infection.  
Absence of recent pulmonary infarction.  
Absence of active peptic ulcer disease.  
Absence of significant cerebrovascular or peripheral vascular disease.  
Ability to comply with complex medical regimen.  
Absence of drug or alcohol addiction.

## Donor Heart Referral

Currently accepted limitations<sup>2</sup> of cardiac preservation require a donor heart ischemia time of two hours or less if possible, though the longest ischemia time followed by successful transplantation has been five hours.<sup>3</sup> We have used four local Tucson donor hearts and eight hearts transported by plane and helicopter from Phoenix. The ischemic times for local hearts averaged 50 minutes and the mean ischemic time for hearts transported from Phoenix has been 133 minutes.

Criteria for donor selection are in Table 2. Perhaps the greatest difficulty in selecting a suitable donor heart is in the setting of high dose inotrope, usually dopamine, in the potential donor. In this situation we favor adequate volume loading followed by tapering of the dopamine infusion to less than 10 mcg/kg/min. If physiologic blood pressure is maintained and physical signs of an adequate cardiac output are present, we consider the heart adequate.



**Table 2**  
**Donor Criteria**

Diagnosis of brain death by two specialists from neurosciences.

Age less than 35 years.

Weight at least 40 kilograms.

Absence of: history of cardiac disease  
cardiac trauma  
cardiac abnormalities by physical exam and echocardiography  
cardiac arrest for longer than 5 minutes  
cardiac arrhythmias  
history of intracardiac drug administration  
high dose inotropic support  
malignancy  
infection

ABO compatibility and negative lymphocyte crossmatch.

Our procurement technique employs heparinization (30  $\mu$ /kg), the isolation of the great vessels and cavae, caval inflow occlusion, and simultaneous administration of topical saline (4°C) and central cardioplegic solution cooling, 5% dextrose in water with 20 meq/l,  $\text{NaHCO}_3$ , 12.5 gm mannitol, and 30 meq/l KCl. When the heart arrests the aorta is cross-clamped, the inferior vena cava is divided to decompress the right atrium, and then the entire 500 cc of cardioplegic solution is used to flush the heart. The heart is then removed and further cooled in a saline bath at 4°C for approximately ten minutes. In the case of local heart recovery, the transplant is begun immediately. For transport, the heart is double bagged, placed in a sterile plastic container, packed in ice and transported.

### Operative and Postoperative Care

We use Shumway Lower<sup>1</sup> technique of orthotopic transplantation. Our treatment regimens are listed in Table 3.

**Table 3**

| At Operation                         | Postoperatively                                      |
|--------------------------------------|------------------------------------------------------|
| methylprednisolone 500 mg (post CPB) | methylprednisolone 125 mg (IV x 3 doses)             |
| imuran 4 mg/kg IV (pre CPB)          | prednisone 100 mg po qd taper by 5 mg/d to 60 mg/day |
| rabbit ATG 400 mg IM (pre CPB)       | imuran 200 mg po qd                                  |
|                                      | rabbit ATG 200 mg IM daily (x3 qod x 3)              |

Drugs other than those listed have been reported.<sup>2</sup> The diagnosis of rejection is made on the basis of twice daily EKG voltage determinations (20% drop suggests rejection), weekly for one month, right ventricular endomyocardial biopsies, and clinical findings of heart failure ( $S_3$  gallop, elevated venous pressure). Acute rejection is treated with methylprednisolone 1 gm intravenously for three days, a course of rabbit

**Number of Patients Alive**

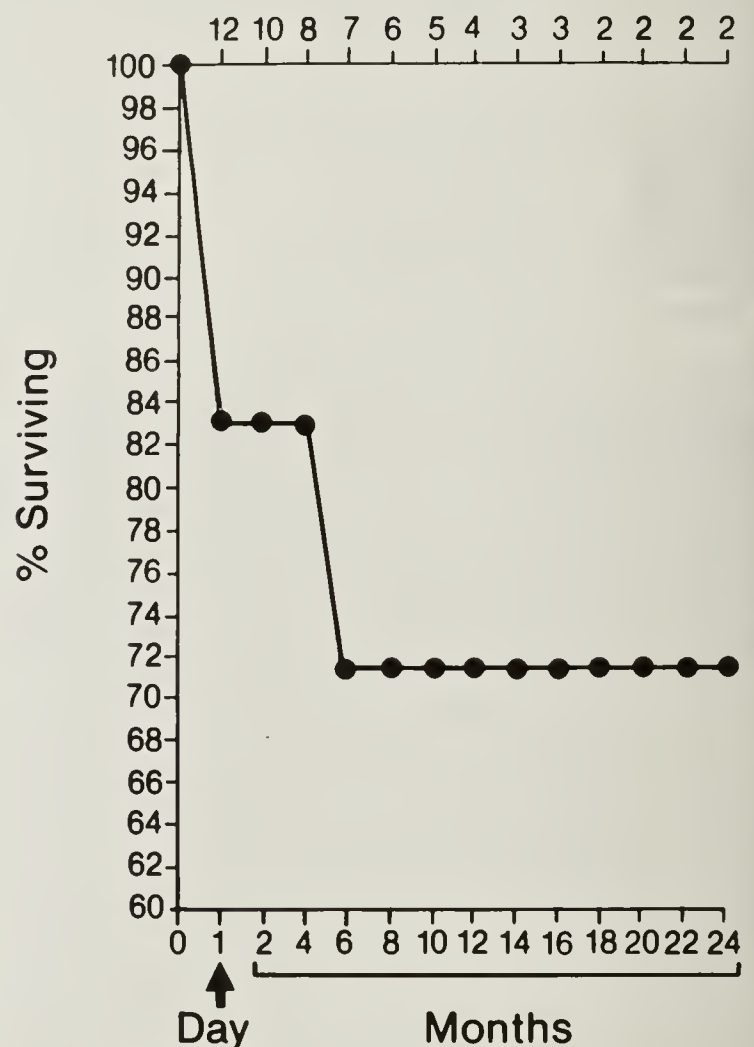


**Figure 1**

antithymocyte globulin, 200 mg IM daily x 3, then qod x 3, and raising the prednisone dose to 100 mg daily and tapering to prerejection level at 5 mg/day decrements. Generally we do not treat for rejection without a diagnostic biopsy. Therefore, the EKG has become a screening test which discriminates patients who need cardiac biopsy, and the biopsy is given the greatest weight in deciding to treat.

### Results

Figure 1 displays the actuarial survival curve for our program as of March 1, 1981. The one and two year survivals are 72 percent. Table 4 lists all patients transplanted, ages, diagnoses, transplant data, survival time, length of initial hospital stay post transplant, percent of time out of hospital since discharge, and some information on costs.

Three patients died. The first had survived four months before rapidly succumbing to a listeria monocytogenes mediastinal abscess. The second and third deaths occurred in the operating room at the time of operation when the donor hearts, both transported from Phoenix with ischemic times of about two hours, failed to function, exhibiting a flaccid state characterized by prolonged fibrillation, poor defibrillation, poor electrical conduction (initial heart block followed by

atient Selection (continued)  
 rom the list of 50 patients referred, 12 patients have had heart transplants, two patients are currently waiting.

Table 4  
 (Summarizes survival information accumulated as of March 1, 1981)

| Name | Age<br>Tx | Sex | Cardio-<br>myopathy | Tx<br>Date | Survival                                               | NYHA<br>Funct.<br>Class | Length<br>of initial<br>hospital-<br>ization<br>days | % of Time<br>as out-pt<br>since<br>initial<br>discharge | Initial<br>admit+ | Subse-<br>quent<br>admits<br>Year 1 | Out-pt<br>costs<br>Year<br>1++ | Hosp<br>Year<br>2+ | Out-pt<br>cost<br>Year<br>2++ | Total cost<br>as of<br>March 1,<br>1981 |
|------|-----------|-----|---------------------|------------|--------------------------------------------------------|-------------------------|------------------------------------------------------|---------------------------------------------------------|-------------------|-------------------------------------|--------------------------------|--------------------|-------------------------------|-----------------------------------------|
| NT   | 49        | M   | Ischemic            | 3/27/79    | 24 months<br>alive                                     | I                       | 50                                                   | 78                                                      | \$38,570          | \$18,330                            | \$6,934                        | \$18,532           | \$4,063                       | \$86,420                                |
| SC   | 42        | M   | Ischemic            | 4/13/79    | 23 months<br>alive                                     | I                       | 46                                                   | 82                                                      | \$19,102          | \$32,527                            | \$5,019                        | ---                | \$ 239                        | \$56,887                                |
| WO   | 44        | M   | Idiopathic          | 8/29/79    | 12/22/79<br>4 months<br>dead, media-<br>stinal abscess |                         | 44                                                   | 58                                                      | \$29,324          | \$11,300                            | ---                            | ---                | ---                           | \$41,765                                |
| MR   | 49        | F   | Viral               | 12/3/79    | 14 months<br>alive                                     | I                       | 75                                                   | 94                                                      | \$40,657          | \$11,324                            | \$3,244                        | ---                | no charge<br>yet              | \$55,225                                |
| JC   | 36        | M   | Idiopathic          | 4/16/80    | 11 months<br>alive                                     | I                       | 89                                                   | 100                                                     | \$42,234          | ---                                 | \$1,740                        | ---                | ---                           | \$43,983                                |
| LG   | 26        | F   | Idiopathic          | 5/16/80    | 10 months<br>alive                                     | I                       | 60                                                   | 97                                                      | \$38,953          | \$ 3,196                            | \$3,381                        | ---                | ---                           | \$45,530                                |
| FS   | 46        | M   | Ischemic            | 8/11/80    | 8/12/80<br>dead, donor<br>heart failed                 |                         | ---                                                  | ---                                                     | \$8,939           | ---                                 | ---                            | ---                | ---                           | ---                                     |
| RH   | 56        | M   | Ischemic            | 9/14/80    | 6 months<br>alive                                      | I                       | 46                                                   | ★                                                       | \$47,977          | \$150                               | \$95                           | ---                | ---                           | \$48,222                                |
| WL   | 25        | M   | Viral               | 11/22/80   | 3 months                                               | I                       | 56                                                   | 79                                                      | \$36,491          | \$36                                | \$356                          | ---                | ---                           | \$36,883                                |
| HW   | 39        | M   | Idiopathic          | 12/20/80   | 2 months                                               | I                       | 60                                                   | too short                                               | \$45,112          | 0                                   | \$403                          | ---                | ---                           | \$45,515                                |
| WD   | 50        | M   | Ischemic            | 1/16/81    | 1/16/81                                                |                         |                                                      |                                                         | \$8,413           | ---                                 | ---                            | ---                | ---                           | ---                                     |
| EM   | 56        | M   | Ischemic            | 3/ 1/81    | 1 week<br>alive                                        | too<br>early            |                                                      | too<br>short                                            | not<br>available  | ---                                 | ---                            | ---                | ---                           | ---                                     |

★ Because this patient was boarded at the Tucson VA Medical Center until return home to Virginia, this calculation would be misleading.

+ Total cost including hospital charges and professional fees.

++ Does not include medication.

sinus mechanism with bundle branch block), and minimal function. In retrospect, six of six blood cultures from one of the donors were positive for *pseudomonas aeruginosa* (culture results available one day post transplant). The other donor, a 46-year-old, had been on intermittently very high doses of dopamine (>30 mcg/kg/min). Since these two deaths, we have revised our donor criteria (see section on heart donors).

Complications encountered by each of our twelve patients are shown in Table 5. As previously reported,<sup>2</sup> most of the complications including rejection and infection have occurred in the first three postoperative months. During that period we have seen 1.2 rejections per patient and 1.1 infections per patient.

Eight of the nine survivors were functional Class I as

of March 1, 1981. The ninth patient had just been transplanted. Our first two transplant patients both at risk for two years, were surviving.

### Discussion

Nine of 12 heart transplant patients are surviving with a one-year survival rate of 72 percent. All patients discharged from the hospital have had excellent exercise tolerance. The average cost for the first year for the first five patients, two of whom are not quite one year, has been \$48,978.60.

Funding for these transplants has come from private insurance, personal assets, Champus, the Veterans Administration, Medicare, and private donations. None of the expenses have been subsidized by the University of Arizona or government grants.



Table 5

|                   | 0-3                                                                                                                   | 4-6                                                   | 7-9                                                      | 10-12             | 13-15                                       | 16-18 | 19-21              | 22-24    |
|-------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|-------------------|---------------------------------------------|-------|--------------------|----------|
| NI<br>Tx 3/27/79  | 5/79 CMV infection<br>6/79 FUO <sup>1</sup>                                                                           | 7/79 Syncope<br>8/79 Syncope<br>8/79 FUO <sup>1</sup> | 10/79 Syncope<br>11/79 Syncope<br>11/79 FUO <sup>1</sup> | 2/80 H.<br>Zoster | 4/80 Strep<br>Pneumonia<br>5/80 Prostatitis | None  | 12/80 Back<br>Pain | 2/80 CMV |
| SC<br>Tx 4/13/79  | 4/79 Bradycardia<br>6/79 Legionnaire's Disease<br>7/79 Rejection                                                      | 8/79 Rejection<br>9/79 H. Zoster                      | 12/79 Rejection                                          | 3/80 Rejection    | None                                        | None  | None               |          |
| WO<br>Tx 8/29/79  | 9/79 Rejection<br>10/79 Rejection<br>11/79 H. Simplex<br>11/79 Listeria sepsis                                        | 12/79 Death from<br>strep medias-<br>tinal abscess    |                                                          |                   |                                             |       |                    |          |
| MR<br>Tx 12/3/79  | 12/79 Rejection<br>12/79 Legionnaire's Disease<br>1/80 Rejection                                                      | 5/80 Petrylidium<br>Boydei<br>5/80 Nocardia           | None                                                     | None              | None                                        |       |                    |          |
| JC<br>Tx 4/16/80  | 4/80 Rejection<br>5/80 Leukopenia<br>6/80 Strep viridans sepsis<br>6/80 Penicillin induced<br>seizure                 | None                                                  | None                                                     | None              |                                             |       |                    |          |
| LG<br>Tx 5/16/80  | 5/80 Rejection<br>5/80 E. Coli UTI <sup>2</sup><br>6/80 Leukopenia<br>6/80 Dental abscess                             | 9/80 FUO <sup>1</sup><br>9/80 Nocardia                | None                                                     |                   |                                             |       |                    |          |
| FS<br>Tx 8/11/80  | 8/80 Death at Tx Surgery                                                                                              |                                                       |                                                          |                   |                                             |       |                    |          |
| RH<br>Tx 9/14/80  | 10/80 Rejection<br>10/80 Sick sinus syndrome<br>10/80 Klebsiella sepsis<br>10/80 Diabetes mellitus<br>11/80 Rejection | 12/80 Nocardia<br>12/80 Leukopenia                    |                                                          |                   |                                             |       |                    |          |
| WL<br>Tx 11/21/80 | 11/80 PVC's <sup>3</sup><br>12/80 Rejection<br>12/80 Leukopenia<br>1/81 Strep pneumonia                               |                                                       |                                                          |                   |                                             |       |                    |          |
| HW<br>Tx 12/21/80 | 1/81 TIA <sup>4</sup><br>1/81 Serum sickness<br>1/81 Rejection<br>1/81 Leukopenia<br>1/81 Duodenitis                  |                                                       |                                                          |                   |                                             |       |                    |          |
| WD<br>Tx 1/16/81  | 1/81 Death at Tx Surgery                                                                                              |                                                       |                                                          |                   |                                             |       |                    |          |
| EM<br>Tx 3/1/81   |                                                                                                                       |                                                       |                                                          |                   |                                             |       |                    |          |

1. FUO = fever of unknown origin

2. UTI = urinary tract infection

3. PVC = premature ventricular contractions

4. TIA = transient ischemic attack

Our program was initiated by a team of two (now 3) cardiac surgeons, one transplant coordinator, one research associate, and three rotating general surgery residents. It has not required a large outlay of resources nor has it detracted from ongoing programs. Support from other departments including clinical and surgical pathology, cardiology, and infectious disease has been strong.

Based upon this initial two-year experience, it appears that a cardiac transplantation program which adheres to the principles elucidated primarily by the Stanford

group can be reasonably successful at what seems to be a reasonable cost.

#### References

1. Baumgartner WA, Reitz BA, Oyer PE, Stinson EB, Shumway NE: Cardiac Transplantation. *Curr Probl Surg* 16:6, 1979.
2. Copeland JG, Stinson EB: Human heart transplantation. *Current Probl Cardiac* 4:1-51, 1979.
3. Thomas FT, Szentpetery SS, Mammana RB, Wolfgang TC, Lower RR: Long distance transportation of human hearts for transplantation. *Ann Thorac Surg* 26:344, 1978.
4. Lower RR, Doug E, Shumway NE, Long term survival of cardiac homografts. *Surgery* 58:110, 1965.



## The Medical Society Media Committee: A Model First Year

Ronald P. Spark, M.D.

This summer the Media Committee of the Pima County Medical Society celebrated its first birthday. Our circumparous dystocia has obviously produced a vigorous off-spring but not one without episodes of infantile colic and media earache. This report describes our developmental milestones in an effort to encourage other medical societies to media committee parenthood.

Since October 25 our weekly radio show, "Prescription for Health" has aired live Saturday at 9:30 a.m. and has been rebroadcast on Sunday at 10:05 a.m. To date over 100 of our membership (about 15%) have served as panelists. Every single doctor has expressed immense personal satisfaction with these media excursions. Most of the membership perceive a definite public education and positive-image gain through these programs. Surprisingly, most of the critical comments have not been about program balance or accuracy of content. Some feel that we haven't gone after specific adverse lay media stories or "alternative" care systems. Actually, we manage to integrate our criticism in with the broader topics. By giving the public the "Big Picture" we don't appear to have such a "sour grapes" attitude on a specific pejoration. Examples include comments about tanning centers on the show "Summer Skin Problems", B<sup>12</sup> shots on "Anemia" and spinal manipulation on "Low Back Pain."

Because of the enthusiastic acceptance of the radio show, physicians are now more easily persuaded to participate. However, they are still not quite ready to tackle everything. Topics such as

whiplash, nutrition, home delivery and homosexuality found quite a few hiding in the closet.

The public response has been reflected in a steady increase in the number of called-in questions and letters. The general manager of KTUC and our two commercial sponsors remain staunch supporters. Several journal articles have appeared nationally about the show and correspondence has come from as far away as Australia. The Committee knows we have a good thing going.

Our second milestone was our "Media Happening" last March. We invited members of the electronic and journalistic news media, hospital PR heads and our own Executive Board for an evening of wine and cheese. The entertainment program consisted of a show of PCMS media wares.

The editors of *Sombrero*, the PCMS magazine, reviewed their efforts to incorporate position papers and pertinent editorials within their expanded format. Several guests requested to be placed on our subscription list and several volunteered to occasionally "adapt" those articles to their own uses.

We then circulated our PCMS Respondent's Panel list. These volunteer physicians were listed by medical or political topic and had agreed to make themselves readily available to be PCMS media spokesmen. To help our respondents we up-dated our "Physicians Guide to Media Relations." Success has come slowly over the months as several respondents were used by the media. We plan to revitalize our list and reissue it to our media contacts this fall.

I gave a short presentation on the PCMS goals in programing "Prescription for Health." In order to give this monologue some vitality, we screened a video tape segment of the show from the Tucson Medical Center News program.

As a finale, we then played three AMA TV PSAs (Public Service Announcements), one of which had been purchased and created by the AMA and its Auxiliary. These were hilarious and a perfect "kicker" for the evening. In the aura of good feeling, one of the TV stations agreed to put the PSAs on a TV tape for us, while one of the hospitals gave us the special tape to do so. We followed-up on this by getting a trailer placed on each tape which reads "A Health Tip from Your Pima County Medical Society." Several phone calls later, we obtained playing time commitments from three of the four commercial TV stations. Since the PSA directors won't divulge exactly the number of airings, it's hard to judge if our PSAs have had any impact. One station has placed them in a rotation of twenty PSAs which have run continuously for the last four months. Another stated that she has played them

"a few times." In retrospect it would have been better to dole them out one at a time every two or three months. There are two reasons for this: most TV stations are so swamped with PSAs that they generally play only one per organization. Secondly, they scrap their whole run of PSAs completely every two to three months, without telling you that you're off the air. This year our plans are to purchase and place two AMA-produced PSAs for the coming TV season. Another tip is that ten and thirty second spots get more play than minute long ones. We learned that sheer numbers don't make a "Media Happening" successful, the quality of the "fall out" does. Our current plans call for several small gatherings where only one newspaper or station is invited. We naively didn't understand how territorial the media folks are, but now do. We hope an intimate setting will more readily speed the necessary exchange of views and help build mutual confidence.

What of the near future? We currently rely on the ArMA Communications Division to supply the local press with position papers and background information releases. We hope to supplement this excellent service eventually, by local physician and PCMS editorial pieces. Simply reworking of the weekly radio scripts would be the most accessible resource of us. Only organization, time, and the doctors to do it, prevents us from being underway — after all, we've come this far.

Another pleasure we're looking to is doing radio PSAs. One of our committee members has volunteered to write and direct these, while KTUC has given us the use of their facilities. We did several ten and thirty second spots (CPR, immunization, suicide prevention, HBP and prenatal care) just to test the potential market. Remarkably, ten stations expressed some interest, although some would only read our scripts. We'll be spending this Fall following up on these leads and producing more spots. We've already learned that the same general rules about PSAs apply to radio: 1) dole them out one at a time, 2) issue every two or three months, and 3) ten and thirty second spots are best. Our bible for these activities has been a book which lists the particulars of each station, the *Tucson Broadcasters Association "Media Access Handbook 1981."* Specifically, the managers, public service directors, and news directors are listed, as well as the station format and their guideline for PSAs (when, how long, scripts only, etc.).

Well, now that the ballyhoo has died down, it comes down to changing diapers and warming up media pap. But don't get us wrong, when it comes to the PCMS Media Committee, we're very proud parents.

From: Pima County Medical Society, 5625-27 East Grant Road, Tucson, Arizona 85712. Dr. Spark is Chairman of the Media Committee.





## The Computer and Imaging

**President**
**Clyde W. Kurtz, M.D.**
**President-Elect**
**John E. Oakley, M.D.**
**Vice President**
**Neopito L. Robles, M.D.**
**Secretary**
**Earl J. Baker, M.D.**
**Treasurer**
**Clifford D. DeBenedetti, M.D.**
**Past President**
**John T. Clymer, M.D.**
**Executive Director**
**Bruce E. Robinson**
**Publishing Committee**
**Marshall B. Block, M.D., Chairman**
**Burnell R. Brown, M.D.**
**George E. Burdick, M.D.**
**Kenneth B. Desser, M.D.**
**Benjamin K. Harris, M.D.**
**Jonathan M. Levy, M.D.**
**William B. McGrath, M.D.**
**Jay W. Smith, M.D.**
**Sidney C. Werner, M.D.**

Computers are playing an ever increasing role in the day-to-day management of patient care. However, physicians must recognize that computers only aid as efficient instruments for computations and cannot be depended upon for judgmental decisions. Computers have particularly helped us in radiology. They are essential in dosimetry for radiation therapy, are essential for assessment of cardiac function from radionuclide images and have been the basis for allowing us to "slice through patients" via computerized tomography.

Since 1973 a pioneering effort at the University of Arizona College of Medicine has resulted in digitizing images in medicine. How would you like to have available, on your office desk, a little six-inch monitor that would provide immediate retrieval of your patient's image along with a radiological report; be that image a chest film, CT scan, radionuclide study or an ultrasound study? Such technology is very near at hand.

When the project in photoelectronic radiology was started in 1973 the specific goal was to replace all medical images, including those on x-ray film, with photoelectronic images. A by-product of this study is computerized digital subtraction angiography. Early on we noted that many of digitized images were too degraded for medical usefulness. However, we developed a method using a slightly degraded image which allows satisfactory imaging of all the major blood vessels of the body following a simple intravenous injection of contrast media. During the past year, we have studied approximately 400 patients visualizing the vessels of the head and neck, the aorta, the pulmonary arteries, and the vessels of the abdomen and extremities. This procedure has caused a major impact

on radiological imaging because of its simplicity in contrast to the current angiographic studies which require an invasive catheter to be placed into the organ of interest. The success and practicality of the technique has required that one University Hospital diagnostic room be totally dedicated to producing digital images.

Already many of our habits regarding patient care management have changed. High-risk hypertensive patients are now routinely studied using the technique to rule out renovascular disease. All patients with surgical grafts are easily followed using this procedure (see Ovitt, May 1980, *Arizona Medicine*), and we have found that this new computerized angiography is able to demonstrate some intracranial tumors not seen by traditional film subtraction.

Our long term goal is to digitize all medical images and have them retrievable for any physician in any office, clinic, ward or conference room. To attain this goal will take a few more years of development and will require some improvement in the image receptor and a large scale evaluation of systems programming.

The potential as an educational tool is great. We can envision dynamic anatomic and physiologic correlation being readily available. Cost savings in materials and storage space should be significant. Perhaps the biggest problem for the future lies with ourselves. As physicians we must continue to control computers and prevent computers from controlling us!

**M. Paul Capp, M.D.**  
Professor and Head  
Department of Radiology

**Louis J. Kettel, M.D.**  
Dean  
College of Medicine



**Editor**

**Marshall B. Block, M.D.**

**Associate Editors**

**Kenneth Desser, M.D.  
C. Herbert Fredell, M.D.  
Warren Gorman, M.D.**

**Editorial Board**

**Thomas E. Blittker, M.D.  
John R. Green, M.D.  
John W. Kennedy, M.D.  
William B. McGrath, M.D.  
Arthur R. Nelson, M.D.  
Charles Nugent, M.D.  
Eric Prosnitz, M.D.  
Sydney Salmon, M.D.  
Lawrence Stern, M.D.**

**Managing Editor**

**Bruce E. Robinson**

**Editorial Assistant**

**Joan M. Alexander**

*Editor:*

At the latest meeting of the House of Delegates of the Arizona Medical Association, Resolution 2-81 was adopted.

This allocates an excess of \$16,000 derived from interest on short term investments earned by the Association to scholarships for first year medical students. This project began in 1962 when the finances of the Association were said to be in good order.

Now with the erosion of inflation, the relative decrease in membership, increment, the dues revenue continues to lag behind expenditures. (This despite the best efforts of the present elected officers to rehabilitate the financial status of the Association).

At the last meeting the Resolution Committee, the suave and sagacious Dr. Arthur Dudley led a carefully planned and executed raid from the Medical School to bring forth this \$16,000 for needy medical students.

Now any physician who opposes aid to dependent medical students from whatever source, may be considered a cynical, unfeeling scrooge by his fellow physicians. (I'll accept that connotation and also will match lost meals in the year of 1929-33 with the present struggling student, and furthermore debate the difficulty of raising \$500 tuition in those days with raising \$5,000 today).

Would the Pima Dragoons from the Medical School please consider;

1. That the Admissions Committee cease and desist forthwith in declining to accept students one year, but accept them a year or two later. This after they have "matured" by pushing bed pans in a hospital environment or goosing frogs in a zoology tank and then accept the same student who has expended and lost another year financially and gained nothing in his professional skill. Either accept the student on his merits, on his initial application for admission or once and for all not admit them. (This observer is aware of at least three students who have been so abused and no doubt there are others).

2. Make the Association Fund a revolving loan fund and on graduation after a two to three year interval, repayment should begin. This would aid succeeding classes with additional funds.

3. Place a cap on the total amount available each year from the Association.

These suggestions would give more and not less aid to Dr. Dudley's financially stressed students.

John W. Kennedy, M.D.

P.S. Since the inception of this Scholarship Fund in 1962, it would be interesting to know how many of these former students are now members of their component Medical Society or how many of these students and residents are now members of the American Medical Association component designed for them.

P.S.s This is a great program but let's make it more effective.

*Editor:*

This is in reply to the letter of Dr. John W. Kennedy regarding the grants to the first year medical students as passed by the House of Delegates of the Arizona Medical Association, Resolution 2-81.

The present format started in 1962 was an outgrowth of the student loan program managed by ArMA, which was absorbed by AMA-ERF. However, in 1962 our cash flow was not as great as it is today because of the new building project and the scholarships were limited to two or three the first year as I recall. At this time the sum of \$16,000 is derived entirely from interest monies on short-term investments with no expense to the membership other than some secretarial and bookkeeping expense.

Dr. Kennedy flatters me that I led a carefully planned and executed raid. Certainly I had done my homework for the benefit of the Resolutions Committee and did bring Dr. Andrew Goldner, Dean of Students, as an advocate of this program. Many loan and grant programs have been sharply reduced in the last few years, the most striking example being the temporary suspension of loans from the AMA-ERF fund.

I have taken the liberty of forwarding Dr. Kennedy's letter to Dr. Goldner for a reply from the Medical School in respect to why some student are not admitted on their first year but on their second or



third year. Not being a member of the Admissions Committee I could not comment on this and would hope that Dr. Goldner can adequately explain the procedure.

The Benevolent and Loan Fund Committee is currently gathering the names of all recipients of this fund and corresponding with them in an attempt to not only increase the monies available but possibly to make this a program whereby these recipients might donate on a yearly basis. This has required a great deal of research and will be duly reported to the House of Delegates at the appropriate time. We are additionally attempting to ascertain membership in AMA and the component societies.

Last, but not least, I do not feel that ArMA should place a cap on the amount available each year from the Association. As stated above, this is derived from interest monies at no expense to the membership. The amounts available are entirely determined by cash flow and investments. If the fund could ever become large enough, the second, third, and fourth year students might well be equally eligible, depending upon action of the House of Delegates.

On a more personal note, I can remember in my own case in 1946 when \$50 from the Dean's Discretionary Fund allowed me to buy necessary books while in medical school.

Arthur V. Dudley, Jr., M.D.

Editor:

Dr. Arthur Dudley has asked me to respond to Dr. Kennedy's statement requesting that the College of Medicine should desist from rejecting applicants one year and then accepting them the following year. The easiest way to respond to this is to describe our admissions process and its goals. There are a number of constraints on the Admissions Committee which make decision making extremely difficult. Each year the Committee is presented with approximately 350 applicants, many of whom are qualified. From this pool, the Admissions Committee must select the 88 individuals who they deem to be the best on both cognitive and noncognitive criteria. The Committee often finds individuals who are extremely competent academically but who do not seem to be mature or to have a very realistic view of the medical profession. Conversely, we also find students who seem to be improving their academic record and have all the requisite characteristics to make excellent physicians but just need a year to prove that they can make it through the medical school curriculum. The College of Medicine is quite concerned

about the future of all its applicants. We offer each rejected applicant the opportunity to discuss both their application and the Admission Committee's decision to determine whether or not it would be available to reapply to medical school. No college of medicine or individual can determine, in absolute terms, who should apply and who should not apply. Even those students who are discouraged from reapplying may choose to do so. I have talked with a number of students who initially were not admitted to medical school but were subsequently successful. In retrospect, most of these students felt that the additional year was a useful one for it gave them additional time to mature and to gain a perspective on the profession which they had chosen. They all have stated that they certainly preferred being admitted at a later time and having the opportunity to enter medical school and pursue the career of their choice rather than having no choice at all. I certainly welcome Dr. Kennedy's comments and would be more than happy to discuss them with him in person.

I would like to add that I concur with Dr. Kennedy in that we would like to make the scholarship fund into a meaningful, long-term arrangement and I am presently involved in trying to locate all those individuals who have previously received the scholarship. We hope that we will make these individuals aware of the contributions that ArMA has made toward their education and that they will make an equal contribution to the students who follow them. The College of Medicine has been most appreciative of the generosity of ArMA in this area, and for many of our students the assistance that ArMA has given has made a significant difference in their ability to concentrate on their studies during their first year and has eliminated the need to seek other sources of funds.

Andrew M. Goldner, Ph.D.  
Associate Dean  
U. of A. College of Medicine



*Medical  
History*

## Extracts from the Publications of the Arizona Medical Association

(Continued)

John W. Kennedy, M.D.

This fourth installment picks up with the year 1920. In the previous article (August 1981, p 632) we covered the period of 1919 with physicians returning to Arizona after serving in World War I. (There must have been at least one Arizona physician in the Navy, but there is no mention of this unsung hero).

Now we continue the theme with excerpts from *Southwest Medicine* the official publication of the Arizona Medical Association.

### Scientific Reports

In his article entitled "Pain due to non-suppurative intranasal disorders" Dr. J. J. McLoone, of Phoenix, described Ewing's sign as "a tender point in the inner angle of the orbit. It is due to a tugging of the pulley of the attachment of the superior oblique, a manifestation of eye strain."

W. Warner Watkins, M.D. reported on 1,250 x-ray examinations of the gastrointestinal tract conducted by the Pathological Laboratory in Phoenix. Appendiceal disease, cholecystitis, duodenal ulcer, gastric ulcer and cancer of the stomach were the positive findings, in that order.

C. E. Yount, M.D. of Prescott, who had served in WWI, commented on American youth as mirrored by the World War, stating there were two hundred thousand cases of venereal disease and that tuberculosis was the major cause of being rejected from the armed forces.

W. G. Randell, M.D. of Florence, reported a botulism series in which three Indians, two white men, one woman, and four children were afflicted. All had eaten canned beets, uncooked — five of them died.

(Arizona practicing physicians contributed many articles to their official journal in those days. We are rather sad to see it diminish.)

### 1921 — Scientific Reports

William O. Sweek, M.D., of Phoenix, reported on a new method for treating chronic empyema. This consisted of compressed air, at the pressure of twenty



pounds per square inch, passed through 1 1/2 mm aperture between two platinum electrodes carrying 30,000 volts. This sterilized gas was irrigated into the empyema sinuses and cavities.

### Organization and Reorganization

The first medical staff of St. Joseph's Hospital, Phoenix, was organized in 1921. It was reported "In the reorganization of the old Arizona Hospital, the Tucson-Arizona Sanatorium building has been renovated and equipped for complete modern medical and surgical service as well as for sanatorium patients. The former Arizona Hospital building at 123 S Stone Avenue has been made into a physicians building, occupied exclusively by physicians and dentists in Tucson. *(The editors of this era were never very successful in securing news items from outside Phoenix, a pity).* "Dr. W. C. Hackett, a colored physician from Phoenix, who has been actively engaged in practice for several years, recently purchased the old Kibbey property on East Jefferson Street and has remodeled it into a hospital catering particularly to his own race. Dr. Hackett has won the respect and confidence of the medical profession of the community and his venture will, no doubt, be a success. It has been entirely refinished and equipped with a surgery and will accommodate about twenty patients."

*(Norman Ross, M.D. remembers operating on county patients at this hospital in 1931-32 at the request of Dr. Coit Hughes, who was the Maricopa County Physician. Ross recalls that Dr. Hackett was highly respected by his medical colleagues).*

In a 1922 Phoenix election Dr. W. C. Ellis, an active practitioner, was elected to the City Commission. The two other candidates on the same ticket were elected too. They were all pledged to make a change in the City Manager, which would probably have meant a change in the City Health Department.

A report from the Phoenix St. Joseph's Hospital staff meeting on March 9, 1922 "saw the inauguration of their clinical discussions, one of the main requirements of the standard hospital. The clinical records of four cases were on the program. One case, at least, brought about some spirited discussion. Dr. Yandell presented the history and description of treatment in a case of injury to the face, which fractured the antrum, displaced an unerupted tooth, and was followed by infection of the antrum, suppuration and persistent discharge from an infra-orbital sinus. The spirited discussion, ranged over the failure of the x-ray department to show the fracture, the failure of the surgeon to find the supposed tooth, the ineffectiveness of the treatment of the infection, the apparent prompt effect of electrified air upon the infection, and the proper methods of handling the present condition." There is a note that states

"future meetings of this type will be looked forward to with great interest by all those who were present, and is expected their inauguration will arouse renewed interest in the staff meetings."

The secretary of the Santa Cruz County Medical Society, Dr. A. Wallace, advised that negotiations had been successfully concluded with the State of Sonora, Mexico to have Arizona's certificate to practice medicine and surgery accepted there. To apply for this, applications needed to be sent to the Secretary of the State of Sonora and accompanied by fifty pesos. This very desirable reciprocity had been sought by the Santa Cruz Society and probably foreshadowed similar action by other states in Mexico. *(However, in 1932 the reciprocity was cancelled by the National Government of Mexico).*

At the invitation of Governor Campbell, the National Committee for Mental Hygiene and the state legislature conducted a survey. The report from the committee, conducted by Thomas H. Haines, M.D., stated they had surveyed 10,000 citizens, 2700 children in Maricopa County, 2200 in Cochise, 500 in Tucson, 500 in Miami and 1500 in other counties. They came to some very striking conclusions, and recommended: 1) special schools for dullard or defective students, 2) state school and a colony for the mental defectives, and 3) control of mental defectives by each county. In the Maricopa County school system he found: superior 182, normal 1553, dull 752, border line 152, psychopathic 68, psychoneurotic 1, epileptic 1. *(This was probably the first effort at mental hygiene in the State. Would you believe that in Arizona \$30 million dollars is now expended each year for mental health?)*

### 1922

Twenty staff members were present at the regular medical staff meeting of St. Joseph's Hospital on November 9, 1922. (Remember they had just started these meetings). Details were reported on the case studies and it was said to have been the best meeting so far.

The Sisters of St. Joseph's Hospital granted the Maricopa County Medical Society permission to meet in the hospital lecture room on the first and third Saturday evenings of the month. The first meeting at the hospital was October 21, 1922. W. Warner Watkins, M.D. read a paper on Malta Fever and the recent epidemic in Phoenix.

Dr. James R. Moore, of Clemenceau, Arizona, described in *Southwest Medicine* a case of Henoch's purpura with a discussion of all types of purpura as it was then understood *(Dr. James Moore, retired, lives in Phoenix and is one of the beloved senior physicians of the State).*

### Memorial to Mother M. Paul

In the January 1922 issue of *Southwest*

*Medicine* Warner Watkins wrote a memorial to Mother M. Paul at the time of her death. It reads in part:

"The medical profession of Arizona and neighboring communities has suffered a great loss. Mother Paul had been identified with the medical progress in hospital work in this state for thirty years, during which time the hospitals established by her have invited medical and surgical progress which would not, otherwise, have been possible. She was born in Ireland in 1857 and was a teacher until she entered the convent in 1881 where she became a Mother Superior in 1886.

"She started the Mercy Hospital in Prescott in a small building in 1894. The present building (1922) being erected in 1894 and the chapel in 1914. *(The hospital burned during WW II time and was not rebuilt).*

"The second hospital she established was St. Joseph's Hospital in Phoenix in 1895 in a small house in a corner of the block occupied by the present fine group of buildings. The main building was destroyed by fire in 1917 but was soon rebuilt in a larger more permanent form.

"The third hospital was at Nogales, Arizona, established in 1905 and has grown into a commodious institution which serves Southern Arizona and Northern Mexico.

"The fourth in New Mexico, she established the Academy of Our Lady of Lourdes and St. Joseph's Sanatorium at Silver City."

Warner concluded with this, "Aside from the industrial hospitals, the physicians and surgeons of Arizona owe more to the executive genius and untiring energy of Mother Paul than we do to any other individual, and one and all we join her sorrowing co-workers in mourning a common loss."

*(That was when non-profit hospitals, were — non-profit).* **Malpractice and Meetings**

The Medical Defense Committee of the Arizona Medical Association had been active for five years. In 1922 Mr. LeRoy Anderson, Esq., of Prescott, was appointed its general counsel. During its five years of operation twelve cases had been filed with suits amounting to \$350,000 being brought against members of the Association, but *not one dollar was recovered. (Ah! Alas and alack, this control of malpractice suits is now a lost art).*

The 1922 annual meeting of the Association was held for three days in Prescott and one day in Jerome. Warner Watkins noted, "The writer attended his first Arizona Medical meeting in 1909 and has since missed only one meeting. That one was in Nogales where the famous chicken fight was held. The members of the Association returned to the Arizona side by about \$150 poorer, but richer in the knowledge of Mexican roosters."

Under "Personals" in the same issue of



*Southwest Medicine* it was noted, "On June first St. Luke's Home, Phoenix, transferred all of their patients from Phoenix to St. Luke's in the Mountains at Prescott where they will remain until October one. Patients from St. Luke's on the Desert in Tucson also were transferred there."

Dr. John W. Flinn, of Prescott, was a delegate to the AMA meeting in St. Louis. He reported on the threatened split in the Association over certain organizational policies. (*The Association apparently survived this split but as of this present time, 1981, it still has divisions on policy*).

### 1923 — Deaconess Hospital/Good Samaritan Hospital

On October 20, 1923 the Maricopa County Medical Society was invited to hold their regular meeting at the new Deaconess Hospital. They organized the medical staff, Dr. W. C. Ellis was elected chairman, Dr. H. A. Goss, secretary and 43 physicians became charter members of the staff. (*This hospital was later to be renamed Good Samaritan*).

### The Yavapai Plan

Dr. C. E. Yount was secretary of the Yavapai County Medical Society. He stated that the county society had 18 members scattered over an area of 7800 square miles of sparsely settled mountain country, and the members had to travel from 60 to 80 miles to participate in a meeting. They developed the Yavapai Plan; their meetings were held every two weeks and the program was rotated among the members. The physicians were divided into three teams, which competed against one another in the discussion and diagnosis of the Cabot Cases. (*Dr. Richard Cabot first conducted these cases at the Massachusetts General Hospital. They are now published in the New England Journal of Medicine under the title of MGH Clinical Cases*).

### Physicians on the Move

From Tucson it was reported that Dr. C. A. Thomas and his associates Drs. F. C. Davis and W. D. Schulz moved into a new suite of offices on Scott Street. It was also stated, "Dr. F. C. Davis of Tucson recently had surgery for ureteral stones, is now taking a postgraduate course at Tulane University in New Orleans. (*We wonder what the connection was between the stones and his need for a postgraduate course*).

The Yuma Valley Hospital had completed its medical staff organization and the physicians of Yuma and Somerton could now enjoy excellent hospital facilities.

Dr. Mary L. Neff, of Phoenix, had been spending time on the Pacific coast at various medical centers for additional work in her specialty, and had returned to Phoenix. (*Dr. Neff's specialty was child psychiatry. She later moved to California but continued to do some practice, at intervals, in Arizona*).

### The History of Medical Fees

Dr. D. E. Smallhorst, of El Paso, wrote a very entertaining and instructive article on the "History of Medical Fees." It was an exhaustive study of fees from the time of ancient Egypt-Rome onwards. For instance a thirteenth century English laborer made four to five cents a day, a doctor's visit was fifteen to thirty cents, day or night. A fat hog was 72 cents, and 15 cents would buy three fat geese or two pairs of shoes.

### Personals

The September 1923 issue of *Southwest Medicine* was deluged with personals such as: "Dr. J. M. Pearson, of Glendale, Arizona, has returned from postgraduate work at the Massachusetts General Hospital under Drs. Cabot and Holmes. Dr. Warner Watkins attended the American Roentgen Ray Society meeting in Chicago, of which he was secretary. (*Watkins was a charter member of this rather exclusive organization and the first secretary. One of the organization's early meetings was held in Arizona*). Mrs. Louise Feeland, Chairman of the State Federated Women's Club, reported the Arizona Anti-Tuberculosis Association had conducted its first preventorium in Prescott. Ten children stayed for a 60 day period where attention was paid to proper nourishment, hygiene training and general care. Dr. John W. Flinn donated the needed advice for the under-nourished children at the preventorium. It was reported that Dr. R. A. Stroud, of Tempe, had been made receiver of the Tempe bank, which had recently failed with practically no assets. (*How did he ever arrange this?*)

### Boards, Dedications, and Departments

The new Board of Medical Examiners was appointed by the Governor. They consisted of Dr. H. T. Southworth, Prescott; Dr. W. O. Sweek, Phoenix; Dr. W. F. Chenowith, Nogales; Dr. A. G. Schnabel, Tucson, Hemopath; and Dr. Harriett Johnson, Bisbee, Osteopath.

Dr. A. C. Kingsley resigned as Superintendent of the Arizona State Hospital. He found the Board of Controls' Secretary, who was non-medical, interfered with the medical work and he could not conduct the institution as a 700 patient hospital. (*The hospital began in travail. The contractors swindled the State with poor construction, to such a degree that it almost had to be rebuilt before it could be occupied. As all interested in the hospital know, it has been a constant source of concern, mainly because the legislature almost consistently refuses to fund it properly, and the tenure of the medical director is usually not a very lengthy period*).

The Arizona Deaconess Hospital and Home was dedicated on June 24, 1923. It cost \$350,000, which included the building, grounds and equipment. The Methodist Episcopal Church was the sponsor. (*It is now known as Good Samaritan Hospital and is currently involved in a building program that makes this initial investment seem miniscule*).

Dr. Ralph Herendeen, who formerly had been on the staff of the Copper Queen Hospital in Bisbee in charge of the x-ray department, was now in charge of x-ray at Memorial Hospital in New York. (*What a tragedy — later information indicated that his appointment was because a benefactor of Memorial Hospital had been put under pressure. As late as 1936 he was still in charge of the diagnostic section of the x-ray department at Memorial. But, as the surgeons who trained or visited there will recall, the radiation therapy department had been usurped by the surgeons. When this observer came to Arizona and was associated with Dr. Watkins in the practice of Radiation Therapy, an occasion arose when I had made certain recommendations about the treatment of a case, saying that this was the way they did it at the Memorial Hospital in New York. Watkins sardonically replied, "We don't have the Long Island Sound for patients to jump into after treatment"*).

### County Society Reports

Cochise County news — it was reported that Dr. A. E. Cruthards had joined the Copper Queen Hospital staff in Bisbee. (*Dr. Cruthards subsequently became a long-time practitioner in Phoenix and retired in 1979*).

Dr. H. A. Nichols, formerly of Douglas, moved to Coolidge where he was in charge of the Medical Department of the Holbrook Medical Department. (*This is not identified further*).

### A Lovely Dream — An Editorial — April 1923

"We had cleared our desk of a two week's accumulation of circular letters, exchange magazines and a few letters of importance and after reading over one of the papers for the next issue of the Journal, inserting commas, capitals and other corrections, we came on to some old papers buried in our filing cabinet. These papers were reminiscent of what we have always regarded as an ideal County Society Secretary. Musing over these papers, we recalled his activities. He felt his obligations keenly; it was his pleasure to advertise his society, to secure excellent material for its programs, and to urge the members to attend. One of his chief duties was to advertise to the world what his society was doing. Thus there would appear long accounts in the monthly medical journal of the society meetings, detailing the members who attended, giving the names of the visitors who were present — which is no more than common courtesy — outlining the discussions of the papers, and summarizing the business transacted.

"Never did he allow anything, except sickness, to keep him away from a meeting. No call was too urgent, and no social engagement to be considered in the same category of importance as the society meetings. His minutes were as good as a medical paper; he searched the medical literature for timely subjects to be discussed before his society. Whenever a new doctor located in his community, it

For your patients' benefit...

---

**BEFORE YOU WRITE  
OUR NEXT ANTIARTHRITIC  
PRESCRIPTION,  
PLEASE READ  
THIS MESSAGE**





Boots announces a pharmaceutical first.

# TWO WAYS YOU WILL SAVE MONEY WITH

Introducing

## RUFEN<sup>®</sup> (ibuprofen)

### **\$1.50 REBATE DIRECT TO YOUR PATIENTS ON EVERY PRESCRIPTION OF 100. REFILLS INCLUDED.**

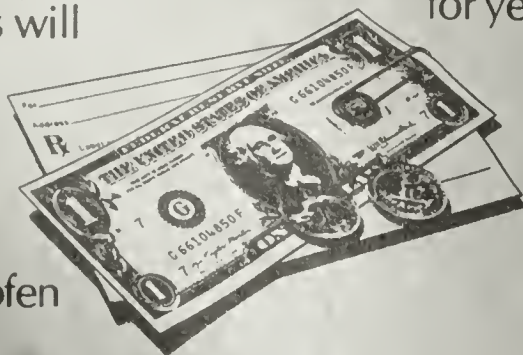
One dollar fifty cents returned for every Rebate Coupon your patients mail in.

Every bottle of 100 tablets of RUFEN 400 mg has a Rebate Coupon attached, with full instructions for redemption.

It has already been determined, through public opinion research, that most arthritic patients will appreciate direct rebate savings as much as they appreciate the results of ibuprofen therapy.

### **AND RUFEN IS PRICED LOWER TO BEGIN WITH.**

Boots has already priced RUFEN lower to the wholesaler and the retailer. And if these savings are passed along, as they should be, your patient will receive the benefit of this lower price. Add these savings to the rebate, and your patients receive substantial relief from the costs of a medication many of them may take for years.



### **RUFEN IS NOT A GENERIC. BOOTS IBUPROFEN IS THE ORIGINAL.**

And if you wish, RUFEN may be substituted for Motrin<sup>®</sup>, because it is bio-equivalent.\*

Original research by The Boots Company Ltd., of Nottingham, England, developed ibuprofen.

And though we introduced it ourselves elsewhere around the world, we licensed ibuprofen for sale in the United States.

Motrin<sup>®</sup> (ibuprofen) is a registered trademark of The Upjohn Corporation.

# ARTHRITIC PATIENTS BUPROFEN THERAPY.

You first came to know it as Motrin (ibuprofen), manufactured by Upjohn.

Now, as we have established facilities in America, we hope you'll come to know Boots brand name for ibuprofen as RUFEN.

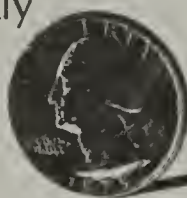
## BIOEQUIVALENCY? OF COURSE.\*

That's why you may substitute RUFEN for Motrin.



## ALSO: A BOOTS CONTRIBUTION TO ARTHRITIS RESEARCH WITH EVERY REBATE.

A 25¢ contribution per rebate is built directly into the RUFEN program. And with thousands of prescriptions anticipated for RUFEN 400 mg each year, the annual potential for arthritis research is enormous.



*Rufen*<sup>®</sup>  
(ibuprofen)



# WHEN YOU'RE WRITING YOUR NEXT PRESCRIPTION FOR IBUPROFEN, PLEASE REMEMBER:

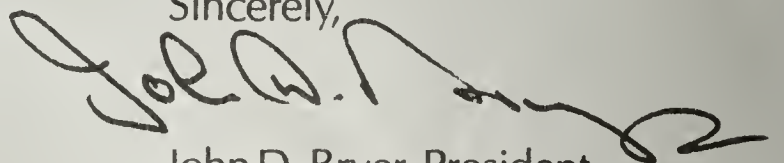
- RUFEN®** OFFERS A \$1.50 REBATE DIRECT TO YOUR PATIENTS ON EVERY BOTTLE OF 100 TABLETS OF RUFEN 400 MG.
- RUFEN** COSTS YOUR PATIENTS LESS TO BEGIN WITH.
- RUFEN** CONTRIBUTES 25¢ PER REBATE TO ARTHRITIS RESEARCH.
- RUFEN** IS NOT A GENERIC... BOOTS IBUPROFEN IS THE ORIGINAL.
- RUFEN** (IBUPROFEN) IS BIOEQUIVALENT TO MOTRIN® (IBUPROFEN).\*

I hope we've given you several good reasons to remember RUFEN the next time you prescribe ibuprofen.

If we haven't, or if you'd like to know more about Boots Pharmaceuticals or this program, please don't hesitate to drop me a line. Or call us directly at our toll-free number: (800) 551-8119. Louisiana residents, call (800) 282-8671.

To ensure that your patients receive the benefits of the Rufen program, be sure to specify "D.A.W.," "No Sub," or "Medically Necessary," as required by the laws of your state.

Sincerely,



John D. Bryer, President  
Boots Pharmaceuticals, Inc.



**Boots Pharmaceuticals, Inc.**  
6540 LINE AVENUE, SHREVEPORT, LOUISIANA 71106

*Pioneers in medicine for the family*

## RUFEN® (ibuprofen/Boots)

(For full prescribing information, see package brochure RUFEN® Tablets (ibuprofen))

**INDICATIONS AND USAGE:** Treatment of signs and symptoms of rheumatoid arthritis and osteoarthritis during acute flares and in the long-term management of these diseases. Safety and effectiveness have not been established for Functional Class IV rheumatoid arthritis.

Relief of mild to moderate pain.

**CONTRAINDICATIONS:** Patients hypersensitive to ibuprofen, or with the syndrome of nasal polyps, angioedema and bronchospastic reactivity to aspirin or other nonsteroidal anti-inflammatory drugs (see WARNINGS).

**WARNINGS:** Anaphylactoid reactions have occurred in patients hypersensitive to aspirin (see CONTRAINDICATIONS). Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Peptic ulceration and gastrointestinal bleeding can end fatally however, an association has not been established. Rufen should be given under close supervision to patients with a history of upper gastrointestinal tract disease and only after consulting the ADVERSE REACTIONS.

In patients with active peptic ulcer and active rheumatoid arthritis, nonulcerogenic drugs, such as gold should be attempted. If Rufen must be given, the patient should be under close supervision for signs of ulcer perforation or gastrointestinal bleeding.

**PRECAUTIONS:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If developed, discontinue Rufen and administer an ophthalmologic examination.

Fluid retention and edema have been associated with Rufen; caution should be used in patients with a history of cardiac decompensation.

Rufen can inhibit platelet aggregation and prolong bleeding time. Use with caution in patients with intrinsic coagulation defects and those taking anticoagulants.

Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain or edema.

To avoid exacerbation of disease or adrenal insufficiency, patients on prolonged corticosteroid therapy, this therapy should be tapered slowly when adding Rufen.

**DRUG INTERACTION:** Coumarin-type anticoagulants. The physician should be cautious when administering Rufen to patients on anticoagulants.

*Aspirin.* Concomitant use may decrease Rufen blood levels.

**PREGNANCY AND NURSING MOTHERS:** Rufen should not be taken during pregnancy nor by nursing mothers.

### ADVERSE REACTIONS

#### Incidence greater than 1%

**Gastrointestinal:** The most frequent adverse reaction is gastrointestinal (4% to 16%). Includes nausea\*, epigastric pain\*, heartburn\*, diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of GI tract (bloating and flatulence). **Central Nervous System:** dizziness\*, headache, nervousness. **Dermatologic:** rash\* (including maculopapular type), pruritus. **Special Senses:** tinnitus. **Metabolic:** decreased appetite, edema, fluid retention. Fluid retention generally responds promptly to drug discontinuation (see PRECAUTIONS).

\*Incidence 3% to 9%.

#### Incidence less than 1 in 100

**Gastrointestinal:** gastric or duodenal ulcer with bleeding and/or perforation, hemorrhage, melena. **Central Nervous System:** depression, insomnia. **Dermatologic:** vesiculobullous eruptions, urticaria, erythema multiforme. **Special Senses:** amblyopia (see PRECAUTIONS). **Hematologic:** leukopenia, decreased hemoglobin and hematocrit. **Cardiovascular:** congestive heart failure in patients with marginal cardiac function, elevated blood pressure.

#### Causal relationship unknown

**Gastrointestinal:** Hepatitis, jaundice, abnormal liver function. **Central Nervous System:** paresthesias, hallucinations, dream abnormalities. **Dermatologic:** alopecia, Stevens-Johnson syndrome. **Special Senses:** Conjunctivitis, diplopia, optic neuritis. **Hematologic:** hemolytic anemia, thrombocytopenia, granulocytopenia bleeding episodes. **Allergic:** fever, serum sickness, lupus erythematosus syndrome. **Endocrine:** gynecostasia, hypoglycemia. **Cardiovascular:** arrhythmias (Sinus tachycardia, bradycardia, and palpitations). **Renal:** decreased creatinine clearance, polyuria, azotemia.

**OVERDOSAGE:** Acute overdosage, the stomach should be emptied. Rufen is acidic and excreted in the urine, alkaline diuresis may benefit.

**DOSAGE AND ADMINISTRATION:** Rheumatoid arthritis and osteoarthritis, including flareups of chronic disease: Suggested dosage 400 mg t.i.d. or q.i.d.

Mild to moderate pain: 400 mg every 4 to 6 hours as necessary for relief of pain. Do not exceed 2,400 mg per day.

**CAUTION:** Federal law prohibits dispensing without prescription.

Boots Pharmaceuticals, Inc.  
Shreveport, Louisiana 71106



was recorded in the medical journal. If a doctor died, or married, or had a new baby, it was given attention in the local news items of the medical publication. "But why tantalize our soul with the impossible? It was but a dream, and we awoke and realized that we would again have to go to press without a single item of news from El Paso, Albuquerque, Roswell, Gallup, Tucson, Bisbee, Douglas, Globe, Miami, Phoenix, Prescott — only Santa Fe, the one bright spot in our editorial darkness. Not a single county secretary on the job, not a single one of the Associate Editors attending to his business. Twelve county secretaries in Arizona, ten in New Mexico, and one in El Paso — and not a one with sufficient interest in his job to place the activities of his society on record in the official publication of his organization.

"This condition will not continue. We have other remedies besides this monthly castigation. We are preparing to drop something. Watch for it!" (Editor Warner Watkins called the shots as he saw them - a straight arrow.)



## ArMA Reports

**The minutes appearing in this section have been condensed. A complete copy of the minutes of any meeting will be mailed to any member requesting them.**

### PUBLIC RELATIONS COMMITTEE

The Public Relations Committee met on October 3, 1981.

The following items were discussed: AMA Public Relations Seminar - reported was the expected demand for health information by cable television, the AMA's catalog of public service announcements and Dr. Spark's presentation on "Media Docs." Activities of ArMA's Public Relations Division - highlighted were current P.R. efforts. Current Projects - the first education brochure "How to Cut Health Care Costs" was presented to the committee. The second brochure is being reviewed and the topics of subsequent brochures were reported. Committee members were asked to prepare two medical information columns for distribution to the lay public via newspapers around the state. A media workshop was discussed and tentatively scheduled for the morning of January 13, 1982 prior to the second program in the "Current Perspectives" series. Future Projects and Priorities - the work in progress by

the Committee is "on target" with the goals and objectives established by the Association's Long Range Planning Committee. Dr. Stein reported his favorable impression of ArMA's public relations efforts and would suggest to the Maricopa County Medical Society that its future P.R. activities and budget, if any, be transferred to ArMA.

### MEDICAL EDUCATION COMMITTEE

The Medical Education Committee met on October 15, 1981.

Section Reports were received from the following: Section on Accreditation, Robert E. Hastings, M.D.; Section on Certification, Ashton B. Taylor, M.D.; Section on Graduate Medical Education, Jack M. Layton, M.D.; Section on Requirements, Albert G. Wanger, M.D.

The following items were discussed:

Registration fee for accreditation surveys; Letter re: Mandatory reporting of CME; Liaison with U. of A. College of Medicine; Definition of category 1 CME; JAMA CME course listings; AMA/PRA and ArMA CME certificate; ACCME state committee meeting and AMA/CME conference.

The following motions were made:

It was moved and carried to approve the continued full accreditation of the Arizona Chapter, American Cancer Society for Continuing Medical Education for a period of two years.

It was moved and carried to approve the continued full accreditation of Walter O. Boswell Memorial Hospital for Continuing Medical Education for a period of four years.

It was moved and carried to approve the continued full accreditation of Flagstaff Hospital and Medical Center for Continuing Medical Education for a period of two years.

It was moved and carried to approve the continued full accreditation of Maricopa County General Hospital for Continuing Medical Education for a period of four years.

It was moved and carried to approve the continued full accreditation of Veterans Administration Hospital, Prescott for Continuing Medical Education for a period of four years.

It was moved and carried that the Medical Education Committee would not consider accreditation for new organizations until they had been in operation for one year.

It was moved and carried to adopt the definition and eligibility policies of the California Medical Association and the first sentence of the eligibility requirements of the ACCME concerning accreditation. (*This policy statement*

*can be obtained from the ArMA office).*

It was moved and carried to continue the present program of mandatory continuing medical education as a requirement for membership in the Arizona Medical Association for one year with reconsideration at that time to determine whether or not the membership requirement should be continued further.

It was moved and carried to reword the ArMA CME Certificate to reflect only the expiration date (similar to AMA/PRA).

### OCCUPATIONAL HEALTH COMMITTEE

The Occupational Health Committee met on October 17, 1981

The following items were discussed:

Occupational Health in Arizona - an overview and future directions and interests of the Committee — the purpose of this meeting was to define the problems of occupational health within the state and to become aware of the function of the agencies which deal directly with these problems.

The following agencies made brief presentations: Arizona Center for Occupational Safety and Health (ACOSH); Arizona Division of Occupational Safety & Health; Arizona Lung Association; Occupational Health & Safety Administration; and the Division of Disease Control Services. It was determined that the committee would prepare brief, descriptive, informative articles on the existence of occupational health hazards and problems, the various agencies that are involved in this area, and the designated areas which they work in, for publication in *Arizona Medicine*.

### HEALTH MANPOWER COMMITTEE

The Health Manpower Committee met October 20, 1981

In his Chairman's Report Dr. Linkner informed the committee of the resignation of Ronald P. Spark, M.D. It was moved and carried by the committee to accept the resignation of Ronald P. Spark, M.D. from the Health Manpower Committee for the term of 1982-84.

**Physician Extenders** - The following items were presented under this section: Allied Health Practitioners; Physicians' Assistant and State Board of Nursing/Proposed Amendment.

It was moved and carried that the committee suggest an amendment to proposed Rule R4-19-55 as follows: Page 1, Line 20, after "licensed



physician" insert "preferably the family physician or, if he is unavailable, a physician specifically designated by the school board."

The following items were discussed: Homeopathy; Podiatry; Naturopathy; Nursing Manpower; National Health Service Corps; Summary of Provision of HR 3982; GMENAC Report; Report on Meeting with Council on Medical Education; and Lay Midwifery.

The following motions were made:

It was moved and carried to recommend to the Board of Directors that ArMA seek an opinion from the Attorney General regarding the germaneness of amendments to S.B. 1167 of the 1980 legislative session, and that should the opinion rule that the legislation is legal that ArMA actively seek repeal of the act.

It was moved and carried to reaffirm the position paper on Podiatry.

It was moved and carried that the committee recommend to the Legislative Committee that the Naturopathic Board of Examiners and its licensing authority be repealed during the next session of the legislature and that the Legislative Committee review the Utah legislation dealing with licensing and regulation of Naturopaths.

It was moved and carried to table the subject of the GMENAC Report for further study and that the report be brought up at the next Health Manpower Committee meeting.

## EXECUTIVE COMMITTEE

The Executive Committee met on October 24, 1981.

The following items were discussed:

Development of Guidelines for use of the Contingency Fund; Annual Review of Christmas Bonus Program; Annual Review of Executive Director's Salary; Amnesty International USA; Management Consultant Search; and Review of Board of Directors' Agenda.

The following motions were made:

It was moved and carried that Clifford D. DeBenedetti, M.D., as Chairman, John T. Clymer, M.D. and Neopito L. Robles, M.D. act as an ex-officio committee to meet and develop suggested guidelines for the use of the Executive Committee's \$2,000 contingency fund and present such guidelines to the committee for its review during its November meeting.

It was moved and carried to continue the Christmas bonus program for 1981 on the same basis as in previous years.

It was moved and carried to make no adjustments in the Executive Director's salary at this time.

It was moved and carried that the Executive Committee of the Arizona Medical Association endorses the appeal to be submitted to the Governor of Oklahoma to prevent execution by the method of lethal injection and that such endorsement be conveyed by letter to the Oklahoma State Medical Association.

## BOARD OF DIRECTORS

The Board of Directors met on October 24, 1981.

The subject of Indigent Health Care legislation was discussed with the following motion being made: It was moved and carried that the Arizona Medical Association actively oppose the proposed AHCCCS (Arizona Health Care Cost Containment System) Bill, as set forth in draft #8 dated 10/1/81, if the major concerns expressed in the October 15, 1981 issue of *Medical Memos* are not satisfied.

### Reports

Activity reports of both the ArMA Auxiliary and ArMPAC were presented.

**Board of Directors** - The following items were presented under this section: Specialty Society Applications for Representation in ArMA's House of Delegates; Rescheduling of the 1982 House of Delegates Meeting to Friday, May 21 and Saturday, May 22 at the Safari Hotel in Scottsdale; Maricopa County Jail Visitation; Ad Hoc Committee on Hospital Service Expansion; and Business/Medicine Coalitions. The following motion was made: It was moved and carried to confirm the appointment of Suzanne E. Dandoy, M.D., Alan L. Gordon, M.D., Clyde W. Kurtz, M.D., George H. Mertz, M.D., Peter H. Nutley, M.D. and Neil O. Ward, M.D. as members of an Ad Hoc Committee on Hospital Service expansion for the term 1981-82, with Dr. Kurtz to serve as Chairman thereof.

**Executive Committee** - The following items were presented under this section: Ratification of Minutes; and Membership Classification Changes Approved.

**Benevolent and Loan Fund Committee** - The following items were presented under this section: Letter of Appreciation and State Board of Medical Student Loans.

**Finance Committee** - The following items were presented under this section: Benevolent and Loan Fund Committee Budget, 1982 Committee Budgets, MICA Sponsorship Fees; ArMA Foundation - Transfer of Funds; and Financial Statement. The following motions were made: It was moved and carried to accept the recommendation of the Finance Committee that the

Benevolent and Loan Fund Committee be removed from the "Committee Department" budget structure, as the House of Delegates has preempted the Finance Committee's control over this budget item and that the Benevolent and Loan Fund Committee's budget appear as a separate entity in future financial statements.

It was moved and carried to accept the recommendation of the Finance Committee and approve the following committee budgets for 1982 - Articles of Incorporation and Bylaws, \$500; Board of Directors, \$6,000; Executive (Meeting Expense - \$2,500; Contingency - \$2,000) \$4,500; Finance, \$1,000; Grievance, \$1,000; History and Obituaries 0; Maternal and Child Health Care, \$1,500; Health Manpower, \$1,200; Legislative, \$25,000; Medical Education, \$4,000; Medical Economics, \$1,500; Occupational Health, \$500; Professional, \$4,000; Public Relations, \$13,400; Governmental Services, \$2,000; Scientific Assembly, \$1,000; Housestaff, \$1,000; Ad Hoc, \$1,000; ArMA Auxiliary, \$1,000; Physician's Health, \$3,500; total \$73,600.

It was moved and carried to accept the recommendation of the Finance Committee that the principle funds received quarterly from Mutual Insurance Company of Arizona be kept intact and invested and not spent for the Association's general operations and that the income generated from the investment of those funds may revert to the general operating fund to be used as needed.

It was moved and carried that authorization be given to transfer from the Arizona Medical Association Foundation to the Arizona Medical Association the sum of \$95,000 previously received from Marsh & McLennan, Inc. to fund future activity of the Malpractice Insurance Crisis Committee.

**Governmental Services Committee** - Northern Arizona Medical Evaluation Systems (Names) PSRO continuation.

**Health Manpower Committee** - The following items were presented under this section: AMA Resolution No. 16 and Homeopathy Act. It was moved and carried to accept the recommendation of the Health Manpower Committee that ArMA seek an opinion from the Attorney General regarding the germaneness of amendments to S.B. 1167 of the 1980 legislative session and, should the opinion rule that the legislation is legal that ArMA actively seek repeal of the act.

**Medical Education** - The following items were presented under this section: Recent Accreditations; Mandatory CME Requirement; and CME Delinquents.

The following motions were made: It was moved and carried to accept and



pprove the action of the Medical Education Committee to continue the present program of mandatory continuing medical education as a requirement for membership in the Arizona Medical Association for one year with reconsideration at that time to determine whether or not the membership requirement should be continued further.

It was moved and carried that the matter of 1979 and 1980 delinquencies be tabled until the next meeting of the Board of Directors.

**Other Business** - The following items were presented under this section: Schedule of Events; Physician's Health Committee - Confirmation of Appointment; Notice of Bankruptcy - WPPA; and AMA Resolution.

The following motion was made: It was moved and carried to confirm the appointment of Joseph M. Hughes, M.D. as a member of the Physician's Health Committee for the term 1981-84.

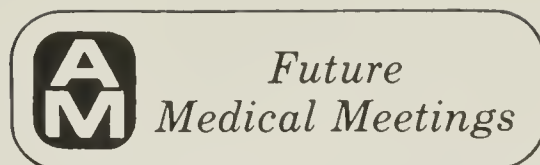
## ARTICLES OF INCORPORATION AND BYLAWS COMMITTEE

The Articles of Incorporation and Bylaws Committee met on October 31, 1981.

The following items were discussed: Review of Association Bylaws and Opinion of Legal Counsel.

The following motion was made: It was moved and carried that the Articles of Incorporation and Bylaws Committee prepare, in resolution form, copy of which is attached hereto and by reference incorporated herein, the proposed amendments to ArMA's bylaws, which resolution shall be presented to the House of Delegates during its 1982 Annual Meeting. *(A copy of this resolution can be obtained from the ArMA offices)*

Legal counsel was asked to review the Articles of Incorporation and Chapter VI and VIII of the Bylaws as they relate to ArMA's budget and/or acquisition of indebtedness and clarify for the committee the point at which the House of Delegates and/or the Board of Directors assumes the responsibility.



The following institutions and organizations have been accredited for their continuing medical education programs by the Liaison Committee on Continuing Medical Education

Arizona Chapter, American Cancer Society  
Arizona Heart Institute  
Arizona Medical Association  
Arizona State Hospital, Phoenix  
Arizona Thoracic Society/Arizona Lung Association  
Walter O. Boswell Memorial Hospital  
Sun City  
Camelback Hospital, Phoenix  
Desert Samaritan Hospital, Mesa  
Good Samaritan Hospital, Phoenix  
Health Maintenance Associates, Phoenix  
Maricopa County General Hospital, Phoenix  
Memorial Hospital of Phoenix  
Mesa Lutheran Hospital, Mesa  
Phoenix Baptist Hospital & Health Center  
Phoenix Indian Medical Center  
St. Joseph's Hospital & Medical Center, Phoenix  
St. Luke's Hospital & Medical Center, Phoenix  
St. Mary's Hospital, Tucson  
Scottsdale Memorial Hospital  
Tucson Hospitals Medical Education Program, (THMEP) Tucson  
University of Arizona College of Medicine, Tucson  
Veterans Administration Medical Center, Phoenix  
Veterans Administration Hospital, Prescott

The accredited institutions and organizations above produce a variety of continuing medical education programs. Each accredited institution and organization is responsible for designating which of these programs meet ArMA's requirements for Category 1 credit. Physicians who participate in programs which are designated Category 1 by accredited institutions will receive Category 1 credit toward the ArMA Certificate in CME and the AMA's Physician's Recognition Award.

## DECEMBER

### Advanced Cardiac Life Support Provider & Recertification

December 15-17, 1981. Arizona Medical Assoc. Offices, Phoenix. Sponsor: ACEP, Az Chapter Am Heart Assoc., & ArMA. Contact: Beverly Richter, ACEP, 810 W. Bethany Home Rd., Phoenix, AZ 85013.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation.

December 16-18, 1981. Phoenix, Arizona. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 N. 18th Street, Ste 105, Phoenix, Arizona 85006.

## 1982

### JANUARY

#### "Gastroenterology" Clinical Seminar Series

January 9, 1982. Granda Royale Hotel, Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

**3rd Conference on Human Tumor Cloning**  
January 10-12, 1982. U of A Cancer Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 Credit.

### Current Perspective II: Trends in OB-GYN

January 13, 1982. Arizona Medical Association offices, Phoenix. Sponsor: Arizona Medical Association. Contact: ArMA, 810 West Bethany Home Road, Phoenix, Arizona 85013. Approved for 3½ hours of category 1 credit.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation.

January 13-15, 1982. Phoenix, Arizona. Sponsor: The Eye Foundation. Contact: Ronald W. Barnet, M.D., The Eye Foundation, 421 N. 18th St., Ste 105, Phoenix, AZ 85006.

### Trauma Care 82

January 17-21, 1982. Alamos Resort, Scottsdale. Sponsor: John C. Lincoln Hospital & Lincoln Institute of Surgery and Trauma. Contact: Paul K. Halverson, Symposium Dir., Lincoln Institute of Surgery & Trauma, 9211 North 2nd St., Phoenix, AZ 85020. Category 1 CME credit has been applied for.

### ECG Interpretation and Arrhythmia Management

January 19-21, 1982. La Posada Resort, Scottsdale. Sponsor: International medical Education Corp. Contact: IMEC, Division of Postgraduate Education, 64 Inverness Drive East, Englewood, Co 80112. Approved for 13 hours of category 1 credit.

### Sports Medicine for the Primary Care Physician

January 25-29, Plaza International Hotel, Tucson, Arizona. Sponsor: International College of Surgeons, and Sports Medicine Clinic of Tucson. Contact: Richard A. Silver, M.D., Medical Director, Sports Medicine Clinic of Tucson, P.O. Box 50187, Tucson, Arizona 85703. Approved for 25 hours of category 1 credit.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation.

January 27-29, 1982. Phoenix, Arizona. Sponsor: The Eye Foundation. Contact: Ronald W. Barnet, M.D., The Eye Foundation, 421 n. 18th Street, Ste 105, Phoenix, AZ 85006.

### Advanced Trauma Life Support Course

January 29-29, 1982. John C. Lincoln Hospital, Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

## FEBRUARY

### 2nd Annual ACEP Symposium - Resuscitation "Pitfalls, Pearls and Promises"

February 3-5, 1982. La Posada Resort, Scottsdale. Sponsor: Arizona Chapter, ACEP. Contact: Beverly Richter, ACEP Office, 810 W. Bethany Home Road, Phoenix, AZ 85013.



### 8th Annual Sports Medicine Symposium

February 5-7, 1982. Holiday Inn Metrocenter, Phoenix. Sponsors: Arizona Medical Assoc., Arizona Osteopathic Medical Assoc., Arizona Interscholastic Assoc. Contact: Nikki Mertz, ArMA, 810 West Bethany Home Rd., Phoenix, AZ 85013. Approved for 7 hours of Category 1 credit

### Clinical Seminar Series "Psychiatry"

February 6, 1982. U of A Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### Southwestern Seminar on Neurological & Neuromuscular Disorders

February 11-13, 1982. Main Auditorium, Az Health Sciences Center, Tucson, Az. Sponsor: Univeristy of Arizona College of Medicine. Contact: Office of Continuing Medical Education & Outeach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for Category 1 credit.

### International Cataract Surgery Symposium 1982

February 15-17, 1982. The Alamos Resort, Scottsdale, Arizona. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 N. 18th St., Ste 105. Phoenix, Arizona 85006.

### Pediatric Update 1982

February 15-18, 1982. La Posada Resort Hotel, Scottsdale, Arizona. Sponsor: St. Joseph's Hospital and Medical Center, Dept. of Pediatrics. Contact: Ronald A. Christensen, M.D., Department of Pediatrics, St. Joseph's Hospital and Medical Center, 350 West Thomas Road, Phoenix, AZ 85013. Approved for 16 hours of Category 1 Credit.

### Frontiers in Ophthalmology

February 18-20, 1982. Arizona Biltmore, Phoenix. Sponsor: St. Luke's Hospital Medical Center. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital Medical Center, 525 N. 18th Street, Phoenix, AZ 85006. Approved for Category 1 credit.

### Modulation & Mediation of Cancer By Vitamins

February 23-26, 1982. U of A Cancer Center, Tucson. Sponsor: U of A College of Medicine. Contact: Mary Humphrey, Cancer Center Division U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per Category 1 credit.

### Fifth Annual Mid-Winter Sympoium in OB/GYN

February 24-26, 1982. Scottsdale Hilton Hotel. Sponsor: Maricopa County General Hospital and Phoenix OB/GYN Society. Contact: The Secretary, Phoenix OB/GYN Society, 333 East Virginia, Ste 222, Phoenix, AZ 85004.

### 10th Annual Taos Lung Disease Symposium

February 26-28, 1982. Taos, New Mexico. Sponsor: American Thoracic Society, New Mexico Chapter. Contact: New Mexico Chapter of the American Thoracic Society, 216 Truman NE, Albuquerque, New Mexico 87108.

## MARCH

### Emergency Care Conference

March 1-3, 1982. Westward Look Resort, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour category 1 credit.

### Sixth Valley of The Sun Dermatology Symposium

March 3-7, 1982. Del Webb's La Posada Resort, Sponsor: Phoenix Dermatologic Society. Contact: Joseph M scherzer, M.D., 7354 Fourth Street, Scottsdale, AZ 85251.

### Changes & Controversies in Pediatrics

March 4-7, 1982. Marriott Hotel, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson AZ 85724. Approved for hour per hour Category 1 credit.

### Advanced Trauma Life Support Course

March 5-7, 1982. Westward Look Resort, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medicine Eduction and Outreach, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation.

March 10-12, 1982. Phoenix, Arizona. Sponsor: The Eye Foundation. Contact: The Eye Foundation, 421 North 18th Street, Phoenix, AZ 85006.

### Ninth Annual Barrow Neurological Symposium

March 11-13, 1982. La Posada Inn Resort, Phoenix. Sponsor: St. Joseph's Hospital and Medical Center, Barrow Neurological Institute. Contact: Richard A. Thompson, M.D., 222 West Thomas Road, Phoenix, Arizona 85013. Approved for 15 hours of category 1 credit.

### Clinical Seminar Series "Endocrinology"

March 13, 1982. Granda Royale, Phoenix. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### 4th Annual Symposium on current Cocnepts in the Management of Acute and Chronic Pain

March 13-14, 1982. Scottsdale Hilton. Sponsor: Maricopa County General Hospital. Contact: Office of CME, MCGH, 2601 E Roosevelt, Phoenix, AZ 85008. Approved for 15 hours of cagetory 1 credit.

### 1st Symposium on Hematologic Malignancies

March 14-21, 1982. Keystone Lodge, Colorado. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education & Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour Category 1 credit.

### Injuries of the Hand — Acute Care and Rehabilitation

March 18-20, 1982. La Posada Resort, Phoenix. Sponsor: American Society for Surgery of the Hand. Contact: ASSH, 2600 South Parker Raod, Ste 132, Aurora, Colorado 80014. Approved for 16 hours of category 1 credit.

### Diagnosis and Therapy of Cardiac Disorders

March 18-20, 1982. Scottsdale Hilton. Sponsors: ArMA and Postgraduate Medical Fourm, Inc. Contact: Daniel S. Duick, M.D., P.O. Box 32567, Phoenix, AZ 85064. Approved for hour per hour cagetory 1 credit.

### 8th Annual Urological Seminar

Mrach 20-21, 1982. Alamos Resort, Scottsdale. Sponsor: Maricopa County General Hospital. Contact: Office of CME, MCGH, 2601 E. Roosevelt, Phoenix, Arizona 85008. Approved for 14 hours of category 1 credit.

### Instruction Course - Cataract Extraction & Intraocular Lens Implantation

March 24-26, 1982. Phoenix, Arizona. Sponsor: The Eye Foundation. Contact: Ronald W. Barnet, M.D., 421 N. 18th Street, Ste 105, Phoenix, AZ 85006.

### St. Luke's Focus '82, Thoracic Medicine

March 29-31, 1982. Los Alamos Hotel, Scottsdale. Sponsor: St. Luke's Hospital. Contact: Christine Campbell, Meeting Planner, St. Luke's Hospital Medical Center, 525 North 18th Street, Phoenix, AZ 85006. Approved for hour per hour Category 1 credit.

## APRIL

### Arizona Chest Symposium

April 1-3. Doubletree Inn, Tucson, Arizona. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour category 1 credit.

### Malignancy

April 7. Arizona Health Sciences Center. Sponsor: U of A College of Medicine. Contact: Office of Continuing medical Educaiton and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour category 1 credit.

### Pan American Cataract & Intraocular Lens Symposium

April 17-19. Scottsdale Hilton. Sponsor: American Society of Contemporary Ophthalmology and the Sight Foundation. Contact: The Sight Foundation, Inc., 10503 Thunderbird Blvd., Ste 9, Sun City, AZ 85351. Approved for 16 hours of category 1 credit.

### 7th Annual Update Primary Care

April 20-24. Arizona Health Sciences Center, Tucson. Sponsor: U of A College of Medicine. Contact: Office of Continuing Medical Education and Outreach, U of A Health Sciences Center, Tucson, AZ 85724. Approved for hour per hour category 1 credit.

### **Southwestern Cardiac Symposium**

April 30- May 1. Hyatt Regency, Phoenix.  
Sponsor: St. Luke's Hospital and Medical Center. Contact: Christine Campbell, Medical Meeting Planner, St. Luke's Hospital & Medical Center, Phoenix, AZ 85006  
Approved for hour per hour category 1 credit.

### **MONTHLY OR WEEKLY**

#### **Shrine Medics Meeting**

Second Tuesday of each month, Doctors Hospital, 5:45 p.m. J. South Classroom.  
Sponsor: Shrine Medics. Contact: Robert C. Briggs, M.D., 5121 N. Central Ave., Phoenix, AZ 85012.

#### **Office Psychiatry for the Primary Provider**

2nd Monday of month, 4811 N. 7th Street, Phoenix, AZ. Sponsor: Arizona Health Plan. Contact: T.R. Bittker, M.D., Box 5000, Phoenix, AZ 85010. Approved for category 1 credit.

#### **Counter Transference Group**

Weekly, Thurs. 8—10 p.m. Sponsor: Phoenix Psychiatric Council. Contact: James E. Campbell, M.D., 5051 N. 34th St., Phoenix, AZ 85018. Approved for 2 hours category 1 credit.

### **CAMELBACK HOSPITAL**

5055 N. 34th St., Phoenix, AZ 85018. Sponsor: Camelback Hospital. Contact: T. F. Reid, Jr., M.D.

#### **Clinical Conference**

3rd Tuesday, 8-9 a.m.

### **DESERT SAMARITAN HOSPITAL**

1400 South Dobson Road, Mesa, Arizona. Contact: L.A. Rosati, M.D. Approved for category 1 credit.

#### **CME Programs**

Weekly Tuesday, 7 p.m., Cafeteria-West End.  
**Clinical Conference - Dept. of Medicine**  
Weekly Thurs., 12:30-1:30 p.m. Buffet Lunch, Grande Rm.

#### **OB/GYN Medical Staff Conference**

Weekly, Monday, 12:30-1:30 p.m. Grande Rm.

#### **Pediatric Case Conference**

2nd. Friday, 12:30 p.m., Grande 2

### **DOCTORS HOSPITAL**

1747 East Thomas Road, Phoenix, Arizona 86016 Contact: Medical Staff Secretary for additional information.

#### **Physicians Continuing Education Program**

1st Thursday, 12:30 p.m., Classrooms.

### **EL DORADO HOSPITAL TUCSON (THMEP)**

1400 N. Wilmont Road, Tucson, AZ 85712. Contact: Eric G. Ramsay, M.D. Approved for category 1 credit.

#### **Family Practice Department Meeting**

1st Monday, 12 Noon, (March, June, Sept. and December) Contact: R. Grossman, M.D.

## **SECOND ANNUAL Arizona ACEP Symposium**

**February 3 - 5, 1982**

### **RESUSCITATION**

*"Pitfalls, Pearls and Promises"*

La Posada Resort Hotel  
4949 East Lincoln Drive  
Scottsdale, Arizona

The program will focus on three vital organ systems: heart, lungs, and brain. Pathophysiologic conditions leading to arrest, actual mechanisms of arrest, and resuscitative techniques will be discussed in detail, with special emphasis on the newest techniques for minimizing organ damage.

18 hours of Category I CME credit have been applied for through ACEP, AAFP and the AMA's Physicians Recognition Award.

For further information and brochure, contact: Beverly Richter, AZ ACEP, 810 West Bethany Home Road, Phoenix, AZ 85013. Phone: 602/246-8901.

### **FLAGSTAFF HOSPITAL & MEDICAL CENTER OF NORTHERN ARIZONA**

1215 N. Beaver Street, P.O. Box 1268, Flagstaff AZ 86002. Contact: B. C. Hirschberg, M.D., CME Program Clinical Conference. Approved for category 1 credit.

#### **Interesting Case Conference**

1st Tuesday, 12:30 P.M., Tollefson Rm.

#### **Clinical Conferences**

Weekly Tuesdays, 12:30 P.M., Tollefson Rm.

#### **Monthly Meeting of Tucson Radiologists**

Last Tues. of month. Plaza International, Tucson, AZ. Sponsor: U of A Medical Center, Dept. of Radiology. Contact: Irwin M. Freundlich, M.D., U of A Health Sciences Center, Dept. of, Radiology, Tucson, AZ 85724. Approved for 2 hours category 1 credit.

#### **Pediatric Grand Rounds**

Tuesday 7:30-8:30 a.m in Phoenix: 1st Tues.—Phoenix Indian Hospital, 2nd Tues.—Maricopa County Hospital, 3rd Tues.—Good Samaritan Hospital, 4th Tues.—St. Joseph's Hospital. Sponsor: Maricopa County Hospital (Phoenix Hospital's Affiliated Pediatric Program). Contact: J. Kipp Charlton, M.D., 2601 E. Roosevelt, Phoenix, AZ 85008. Approved for 1 hour per session category 1 credit.

#### **Review of Forensic Pathology Current Case, Special Topics**

Thursday, weekly, 11 a.m., 120 S. 6th Ave., Phoenix, AZ. Sponsor: Arizona Society of Pathologists. Contact: H.H. Karnitschnig, M.D., 120 S. 6th Ave., Phoenix, AZ. Approved for 1 hour per session category 1 credit.

### **ARIZONA HEART INSTITUTE**

4800 N. 22nd St., Phoenix, P.O. Box 10,000, Phoenix, AZ 85064. Contact: Ravi Koopot, M.D.

#### **Clinical Conference Cardiovascular Medicine**

Third Tues., 5:15 p.m., second floor classroom

### **ARIZONA STATE HOSPITAL**

2500 E. Van Buren, Phoenix, AZ. 85008. Contact: Arnold L. Kendall, M.D.

#### **A.S.H. Psychiatric Grand Rounds**

2nd Wed., 1:00-2:00 P.M., J-6 Conf. Rm., Contact: Dr. Conger & Staff

#### **Clinical-Pathological Conference**

3rd Wed., 1:30-2:30 P.M. General Services Bldg., Conf. Rm.

#### **Medical Grand Rounds**

4th Wed., 1:00-2:00 P.M., Medical Bldg. Conf. Rm.



# F

# RON

# TIERS IN

# OPHTHALMOLOGY

The 8th annual **FRONTIERS IN OPHTHALMOLOGY** will explore the latest advancements in ophthalmic care.

Featured topics and speakers will include:

**CATARACT/IOL** - Manus C. Kraff, M.D., Clinical Professor of Ophthalmology, University of Illinois.

**CORNEA/RADIAL KERATOTOMY** - Peter R. Laibson, M.D., Director of Cornea Services, Wills Eye Hospital, Philadelphia.

**GLAUCOMA** - Thomas J. Zimmerman, M.D., Ph.D., Professor of Ophthalmology, Pharmacology and Experimental Therapeutics, L.S.U. Medical Center.

**NEURO-OPHTHALMOLOGY** - Robert B. Daroff, M.D., Chairman, Department of Neurology, Case Western Reserve University.

**OCULAR PLASTICS** - Alston Callahan, M.D., FACS, President, Eye Foundation, Inc., Birmingham, Alabama.

**RETINA/VITREOUS** - Steven T. Charles, M.D., Associate Clinical Professor of Ophthalmology, University of Tennessee.

February 18-20, 1982

at the world-famous Arizona Biltmore Resort, Phoenix

Approved for Category I C.M.E. credit

---

**Sponsored by the Prentice Eye Institute  
St. Luke's Hospital Medical Center**

---

For additional information, call or write

Christine Campbell, Medical Meeting Planner

St. Luke's Hospital Medical Center

525 N. 18th St., Phoenix, Arizona / (602) 251-8402

## BARROW NEUROLOGICAL INSTITUTE

### Medical Education

Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd., Phoenix, AZ 85013. Sponsor: St. Joseph's Hospital & Medical Center. Contact: John R. Green, M.D. Approved for 1 hour category 1 credit.

### Neurology Teaching Conference

Tuesdays, 8:30-9:30 a.m., Eighth Floor Conf. Room.

### Neurosurgical Morbidity Conference

Wednesdays, 8:15-9:15 a.m., on first and third and 5th, Eighth Floor Conference Room.

### Neuro-ophthalmology Conference

Mondays, 7:30 a.m. in 8th floor neurology conference room.

### Spinal Injury Conference

Wednesdays, 8:15-9:15 a.m., on second and fourth weeks, in Neuropathology Conf. Rm.—a multidisciplinary review of admission by neurosurgeons, orthopedists, and rehabilitation specialists

### Neuro-ophthalmology Conference.

Weekly, 7:30 a.m., 8th floor conference Rm.

### Neuropathology of Gross Specimens Conference

Thursday, 7:30-8:30 a.m. in the Morgue.

### Neurology-Neurosurgical

Fridays, 8-9 a.m., First Floor Conference Rm.

## Neuropathology or Neuroradiology Conferences

Friday, 9 a.m., Neuropathology in Neuropathology Conference Rm., Neuroradiology in First Floor Conference Rm.

### Neurorehabilitation Conference

Tuesdays, noon, 8th Floor Conference Rm.

### Neurosurgical Journal Club

Saturdays, 9-11 a.m. in Eighth Floor Conference Rm.

## WALTER O. BOSWELL MEMORIAL HOSPITAL

10401 Thunderbird Boulevard, Sun City, AZ 85372. Contact: Martha R. Newby, ED.D., Director of Education.

## Medical Department Continuing Medical Education

4th Wednesday, 12 Noon, C119. May, July, Sept. & Nov.

### Tumor Board

Last Thursday of the month, 12 Noon, Educ. Center Classroom I & II, May, July, Sept. & Nov.

### Surgical Department CME

4th Friday, 7 A.M., Educ. Center Classrooms I & II. Contact: Brian Updegraff, M.D.

### Tumor Board Case Conference

3rd Tuesday, 12:30 P.M., Hospital Conf. Rm.

### Mortality & Morbidity Conference

1st Thursday, 12:30 P.M., Hospital Conf. Rm.

## GOOD SAMARITAN HOSPITAL

1033 East McDowell Rd., Phoenix, AZ  
Contact: W. J. Howard, M.D. Approved for category 1 credit.

### Anatomical Path. & Cytology

Weekly, Mondays 4:00-5:00 p.m., S-4 Conf Rm.

### Gynecological Section Conference

2nd Monday, 12:30-1:30 p.m., West Rm

### Monday Noon Conference

Weekly, 12:00-1:00 p.m. R-2 Conf. Rm.

### Mortality/Morbidity, Surgery Comm.

2nd Monday, 11:30-2:00 p.m., West Rm.

### Obstetrical Section Conference

1st Monday, 12:30-1:30 p.m., West Rm.

### Pulmonary Disease Grand Rounds

Weekly, 12:00-1:00 p.m., D-5 North

### Family Practice Conference

Weekly Tuesday, 12:00-1:00 p.m., Fam. Practice Conf. Rm.

### Pediatric Grand Rounds

3rd. Tuesday, 7:30-8:30 a.m., Contact: Paul Bergeson, M.D.

### PM & R Noon Inservice

2nd & 4th Tuesday, 12 Noon, R-2 Conference Rm.

### Surgical Grand Rounds

Weekly, Tuesday 7:00-8:30 a.m. East Rm.

### Clinical Cancer Forum

3rd Wednesday, 12:00-1:00 p.m., West Rm, Contact: John A. Bruner, M.D.

**Combined Cardiovascular & Family Practice Conf.**

1st, 2nd, & 4th Wed., 12:00-1:00 p.m., D-5 North.

**Learning Disabilities**

Weekly, 10:30-12:30 a.m., R-2 Conf. Rm.

**OB/GYN Dept. Review & Statistics**

Weekly, 12:30-3:00 p.m., OBGYN Conf. Rm.

**Gynecological Pathology**

Weekly Thursday, 1:00-2:00 p.m., S-4 Conf. Rm.

**GI Radiology Conference**

1st Thursday, 12:00-1:00 p.m., F151, Radiology Conf. Rm.

**Phoenix Ultrasound Soc. Meeting.**

Medical Education Building, Contact: Dr. Ben Ora

**Neurology Grand Rounds**

Weekly Thursday, 9:00-10:00 a.m., D-5 North.

**Tumor Treatment Planning Conf.**

2nd & 4th Thursdays, 12:00-1:00 p.m., F151 Radiology

**Joint Tumor Gyn Conference**

2nd Friday, 12:30-1:30 p.m., West Rm.

**Medical Grand Rounds**

Weekly Friday, 8:00-9:00 a.m., West Rm.

**Neuropathy Conference**

Last Friday, 1:15-2:15 p.m., S-4 Morgue.

**Psychiatry Grand Rounds**

Weekly Friday, 11:30-1:00 p.m., East Rm.

## KINO COMMUNITY HOSPITAL,(THMEP)

2800 E. Ajo Way, Tucson, AZ. 85713. Contact: Eric C. Ramsay, M.D., Approved for Category 1 credit.

**Medical Conference**

Weekly, 12:30 p.m., Contact: Chief Medical Resident.

**Surgical Conference**

Weekly Mondays, Contact: R. Fischer, M.D.

**Cardiology Conference**

4th Tuesday, 12:30 p.m., Contact: B. Phibbs, M.D.

**Clinical Pharmacology Conference**

5th Tuesday, 12:30 p.m., Contact: M. Katz, Clinical Pharm.

**Neurology Conference**

1st & 3rd. Tuesday, 12:30 p.m., Contact: J. Laguna, M.D.

**Radiology Conference**

2nd Tuesday, 12:30 p.m., Contact: M. Baker, M.D.

**Medical Conference**

Weekly, Thursday, 12:30 p.m., Contact: Chief Medical Resident

**OB/GYN Pathology Conference**

Weekly, Thursday, (except 2nd) 1:30 p.m., Contact: J Wurzel, M.D.

**Psychiatry Journal Club**

Weekly, Thursday, 12 Noon, Contact: Jose Santiago, M.D.

**Medical Conference**

Weekly, Friday, 12:30 p.m., Contact: Chief Medical Resident

## MARYVALE SAMARITAN HOSPITAL

5102 W. Campbell Ave., Phoenix, AZ 85008

**Continuing Medical Education Program**

2nd & 4th Wednesday, 12:30 p.m., Conference Rms.

**Clinical Conferences**

2nd & 4th Wednesday, 12-1 p.m., Medical Staff Lounge

## MARICOPA COUNTY GENERAL HOSPITAL

2601 E. Roosevelt, Phoenix, AZ 85008. Contact: Leonard Tamsky, M.D.

**Medicine Conference**

Daily 12-1 p.m., Contact: S. Schaffner, M.D.

**Chest Surgery Conference**

Weekly, Mondays, 1:30 p.m., Santa Cruz Rm.

**Hematology Conference**

2nd Tuesday, 1:00 p.m., Contact: Walt Koppenbrink, M.D.

**OB/GYN Dept. Grand Rounds**

Weekly Tuesday, 12 Noon, Santa Cruz Room

**Obstetrical Problem Conference**

Weekly Tuesday, 7:30 a.m., Yavapai Rm.

**Orthopedic Conference**

Weekly Tuesday, 7:30 a.m., Santa Cruz Rm.

**Pediatric Grand Rounds**

2nd Tuesday, 7:30-8:30 a.m., Contact: Robert Ganelin, M.D.

**Urology Discharge Planning Conference**

Weekly, 11:30 a.m., Station 42

**Hand Surgery Conference**

Weekly Wed, a.m., Santa Cruz Rm.

**Neurosurgery Discharge Planning**

Weekly Wed., 1:30 p.m., Station 42.

**OB/Neonatology Seminar**

Weekly, Wed. 7:30 a.m., Yavapai Rm.

**Clinical Psychiatric Conference**

Weekly, Wed., 11-12 p.m., Mental Health Annex, Rm. 1346.

**Surgery Conference**

Weekly Wed., 7-8 a.m., Surgical Dept.

**Current Concepts in Medicine & Surgery**

1st Thursday, 1 p.m., Dr. Hospital Class Rm., Contact: Dr. Tamsky.

**Cardiology Conference**

Weekly Thurs., 2 p.m., Santa Cruz Rm.

**OB/GYN Resident Conference**

Weekly Thurs., 12 p.m., Yavapai Rm.

**GYN Endocrine Seminar**

1st & 3rd Friday, 12:30 p.m., Santa Cruz Rm.

**OB/GYN Surgical Pathology Conf.**

Weekly Friday, 7:30 a.m., Yavapai Rm.

**Orthopedic X-Ray Conference**

Weekly Friday, 7:30 a.m., Santa Cruz Rm.

## MESA LUTHERAN HOSPITAL

501 West 10th Place, Mesa, Arizona 85201.

Contact: Daniel J. Kuntz, M.D.

**Continuing Medical Education Programs**

Tusdays, 6:30 p.m., Ocotillo Rm.

## PHOENIX BAPTIST HOSPITAL & MEDICAL CENTER

6025 N. 20th Ave., Phoenix, AZ 85015.

Contact: Leonard M. Lapenson, M.D., Approved for category 1 credit.

**Clinical Conferences**

1st, 2nd & 3rd Tuesdays, 12 noon, 5th floor auditorium.

**CPC or Medical-Surgical Forum**

4th Tuesday, 12 noon, 5th floor auditorium.

## PHOENIX INDIAN MEDICAL CENTER

4212 North 16th St., Phoenix, AZ 85016.

Contact: Leland L. Fairbanks, M.D., Approved for category 1 credit.

**Pediatric Grand Rounds**

1st Tuesday, 7:30-8:30 a.m., Contact: D. Randall, M.D.

**Clinical Staff Teaching Conference, Rm. A.**

Wed. Weekly, 8:00 a.m.

**Otolaryngology Grand Rounds**

4th Wednesday, 4-5 p.m., Conference Rm. A, Contact: N. Wendell Tood, M.D.

**Family Practice/Emergency Room Teaching Conference**

Thursday Weekly, 7:30-8:30 a.m., Conf. Rm. A, Contact: Drs. L. Fairbanks & E.Y. Hooper.

## PHOENIX MEMORIAL HOSPITAL

1201 S. 7th Ave., Phoenix, AZ 85036. Contact: George Scharf, M.D. Approved for category 1 credit.

**Monthly Medical Education Seminar**

3rd Monday, 6:30 p.m., Kiva Conf. Rm.

**Clinical Conferences**

Weekly Tuesday, 12:30 p.m., Kiva Conference Rm.

**Tumor Board Conference**

Weekly Friday, 12 p.m., Kiva Conf. Rm. Contact: H. Kimball, M.D.

## SCOTTSDALE MEMORIAL HOSPITAL

7300 East 4th Street, Scottsdale, AZ 85251. Contact: W. S. Williams, M.D., Approved for category 1 credit.

**Family Practice Conference**

1st Monday, 12:30 p.m., Doctors' Lounge

**Emergency Medical Services Conference**

2nd Monday, 12:30 p.m., Doctors' Lounge

**Neurology/Neurosurgery Conference**

3rd Monday, 12:30 p.m., Doctors' Lounge

**CPC Conference**

4th Monday, 12:30 p.m., Doctors' Lounge

**Pediatrics Conference**

5th Monday, 12:30 p.m., Doctors' Lounge

**Pulmonary Conference**

1st Tuesday, 12:30 p.m., Doctors' Lounge

**Cardiology Conference**

2nd Tuesday, 12:30 p.m., Doctors' Lounge

**Surgery Conference**

3rd Tuesday, 12:30 p.m., Doctors' Lounge

**Resident Grand Rounds**

4th Tuesday, 12:30 p.m., Doctors' Lounge

**Medical Subspecialties**

5th Tuesday, 12:30 p.m., Doctors' Lounge

**Urology Conference**

3rd Thursday, 12:30 p.m., Doctors' Lounge

**Tumor Conference**

4th Thursday, 12:30 p.m., Doctors' Lounge

**GI/Med/Surg/Radiology Conference**

2nd Friday, 12:30 p.m., Doctors' Lounge



## ST. JOSEPH'S HOSPITAL PHOENIX

350 West Thomas Road, Phoenix, AZ 85013.  
Contact: Joseph C. White, M.D.

### OB/GYN Section Conference

3rd & 4th Mondays, 12:30-1:30 p.m., 1st Floor Conf. Rm.

### Genetics Conference

Weekly Monday, 12:30 p.m., Pediatric Department.

### Pediatric Rounds

Weekly Monday, Wed. & Friday, 10:30 a.m., Pediatric Department.

### Pediatric Grand Rounds

4th Tuesday, 7:30-8:30 a.m., Contact: J. Kipp Charlton, M.D.

### ECG Conference

Weekly Tuesday, 12:30 p.m., Pediatric Department.

### Medical Grand Rounds

Weekly Wednesday, 8 a.m., 1st Floor Conf. Room.

### Visiting Professor Formal Presentation

Weekly Thursday, 8 a.m., PIMC

### Visiting Professor Informal Presentation

Weekly Thursday, 9:30 a.m., 1st floor Conf. Rm.

### Visiting Professor Formal Presentation

Weekly Thursday, 12:30 p.m., PIMC

### Nephrology Conference

Weekly Fridays, 12:30 p.m., Pediatric Department.

## ST. JOSEPH'S HOSPITAL (THMEP) TUCSON

350 N. Wilmot Road, Tucson, AZ. Contact: Eric G. Ramsay, M.D. Approved for Category 1 credit.

### Family Practice Department Meeting

3rd Tuesday, 12 p.m., Contact: Wm. Moteforte.

### Ophthalmology Morbidity/Mortality Conf.

4th Tuesday, 12:15 p.m., Contact: Kim Sowards.

### Current Concepts in Medicine

Weekly, Tuesday, 12 p.m., Auditorium.

### Hematology-Oncology Conference

Last Wednesday, 12:15-1:15 p.m., Contact: S Salmon, M.D.

## ST. LUKE'S HOSPITAL MEDICAL CENTER

525 North 18th Street, Phoenix, AZ, Contact: Gerald L. Hansbro, M.D.

### Cardiac Conference

Weekly Monday, 12:15 p.m., Auditorium

### Surgery Conference

1st Tuesday, 12:15 p.m., Auditorium

### Emergency Medicine Conference

1st Wednesday, 12:15 p.m., Auditorium

### Cardiovascular-Thoracic Record Review

3rd Wednesday, 12:15 p.m., Auditorium

### Psychiatry Conference

3rd Thursday, 7 a.m., Auditorium

### Combined Medical General Practice Conference

1st Friday, 12:15 p.m., Auditorium

### Toxicology Grand Rounds

2nd Friday, 7:30 a.m., Auditorium

### Ophthalmology Conference

1st Saturday, 8:30 a.m., Auditorium.

## ST. MARY'S HOSPITAL & HEALTH CENTER

1601 W. St. Mary's Road, Tucson, AZ 85703.  
Contact: see below.

### Monthly Specialty Conference-Dept. of Surgery

1st Monday, 7:30 a.m., Century Rm. A., Contact: Med. Staff Office.

### Grand Rounds: Medical Surgical, Family Practice, Pathology, Radiology

Weekly Thursday

### Emergency Medicine Lectures

Weekly Thursday, 8 a.m., Century Room A.

### Mental Health Update

1st Friday, 11:30-1:00 p.m., Century Rm. A.

### Cardiology Conference

Weekly Friday, 8:00-9:00 a.m., Century Rm., Contact: Anthony Forte, M.D.

## TUCSON MEDICAL CENTER (THMEP)

5301 E. Grant Road, Tucson, AZ 85716.  
Contact: Eric G. Ramsay, M.D. Approved for Category 1 credit.

### Cardiology Conference

Weekly Monday, except last, 12 Noon, Contact: M. Maximov, M.D.

### Dermatology Conference

4th Monday, 5:00 p.m., Contact: R. Miller, M.D.

### Endocrinology Conference

Last Monday, 12 p.m., Contact M. Parker, M.D.

### Perinatal Conference

2nd Monday, 7:30 p.m., Contact: J. Lohman, M.D.

### Surgical Dept. Conference

2nd Monday, 12 Noon: Contact: C. Peter Crowe, Jr., M.D.

### Chest Conference

1st Tuesday, 12 noon, Contact: William Nevin, M.D.

### Hematology Conference

4th Tuesday, 12 Noon, Contact: M. Boxer, M.D.

### Infectious Disease Conference

3rd Tuesday, 12 noon, Contact: B. Friedman, M.D.

### Nephrology Conference

2nd Tuesday, 12 noon, Contact: Dr. Seltzer.

### Orthopedic Conference

1st Tuesday, 7:30 p.m., Contact: Jay Katz, M.D.

### Pediatric Grand Rounds

1st & 3rd Tuesday, 12:30 p.m., Contact: Dr. Lightner.

### Neurophysiology Conference

2nd Tuesday, 5 p.m., Contact: Robert Foote, M.D.

### Clinical Pathology Conference

Last Wednesday, 8:00 a.m., Contact: Dr. Fuchs.

### Family Practice Meeting

2nd Wednesday, 12:30 p.m., Jan., April, July, & Oct. Contact: C. Mangelsdorf, M.D.

### Medical Conference

Weekly Wednesday, (except last), 8:00 a.m., Contact: M. Fuchs, M.D.

### Neurology-Neurosurgery Conference

Weekly Wednesday, 12 noon, Contact: H. W. Buschsbaum, M.D.

### Dermatology Conference

1st Thursday, 12 noon, Contact: R. Friedman, M.D.

### Neuroradiology Conference

Weekly Thursday, 5:00 p.m., Contact: N. Komar, M.D.

### Tumor Conference

Weekly Thursday, 12 noon, Contact: Cancer Committee.

### Pulmonary/Infectious Disease Case Conference

2nd Thursday, 7:30 a.m., Contact: William Nevin, M.D.

### G—I Conference

Weekly Friday, 12 noon, Contact: George Kerrihard, M.D.

### Interhospital Nuclear Medicine Conference

Weekly Friday, 7:15 a.m., Contact: S.V. Hiltz, M.D.

### OBGYN Conference

1st Friday, 7:30 a.m., Contact: Charles Parker, M.D.

### OBGYN Pathology Conference

3rd Friday, 7:30 a.m., Contact: R. Spark, M.D.

## PHOENIX VETERANS ADMINISTRATION MEDICAL CENTER

7th Street and Indian School Road, Phoenix, AZ 85012. Contact: Alfred Heilbrunn, M.D. Approved for Category 1 credit.

### GI X-Ray Clinical Correlation Conf.

1st & 3rd Monday, 1 p.m., Rm. C435, Contact: Drs. Sanowski, & Nielsen.

### Medical/Surgical GI Conference

1st & 3rd Mondays, 3 p.m., Rm. 3134, Contact: Dr. Kozarek, Ext 413. Dr. Mertz, Ext 493.

### GI Pathology Conf.

2nd & 4th Monday, 1 p.m., Path Conf. Rm., Contact: Dr. Sanowski.

### Orthopedic Surgery Conference

2nd Monday, 7:30 a.m., Rm 3134, Contact: Dr. Russo.

### Surgery - Pathology Conference

4th Monday, 4:00 p.m., Rm 2128, Contact: Dr. Mertz & Dr. Lanard.

### GI Grand Rounds

Weekly Tuesday, 1 p.m., Contact: Drs. Sanowski, Kozarek, after GI Grand Rounds Rm T-5.

### Housestaff Pulmonary Disease Teaching Conf.

Weekly Wed., 3-4 p.m., Contact: Dr. Rohwedder, Ext. 388.

### Medical Surgical Chest Conference

1st & 3rd Thursday, Contact: Dr. Rohwedder or Dr. Gill.

### GI Consultant Rounds

1st Thursday, 1:30 p.m., Rm. T-5.

### Medical Service Grand Rounds

Weekly Friday, 11 a.m., Rm. T-5, Contact: Dr. Zeller

# Practice what we teach.

Today there are over 31 million men, women and children suffering from the many forms of arthritis and related rheumatic diseases. And there just aren't enough trained rheumatologists to help them.

That's why arthritis sufferers need your help.

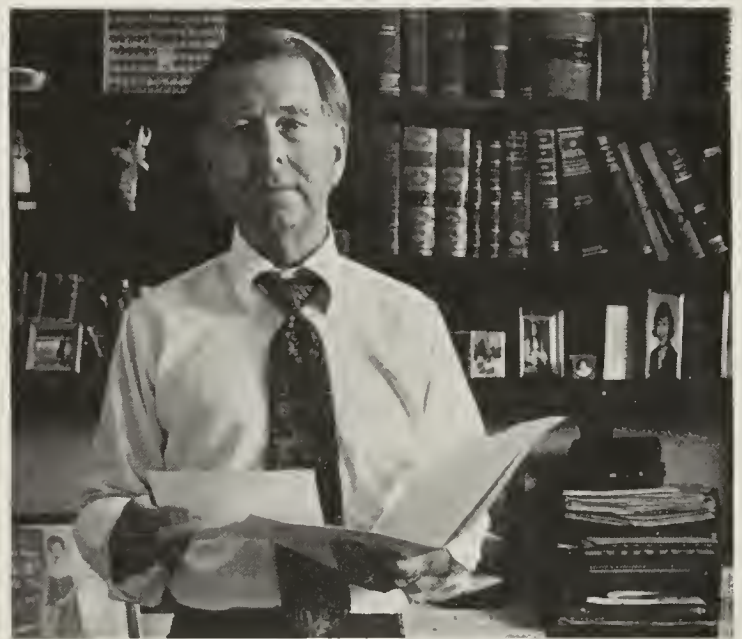
They must depend heavily on the family practitioner for better diagnosis, more effective patient treatment.

Contact your local Arthritis Foundation chapter for the latest information on arthritis. This includes continuing educational seminars by leading rheumatologists, scientific meetings, "outreach" programs — as well as the "Bulletin on the Rheumatic Diseases," "Arthritis and Rheumatism Journal," "Primer on the Rheumatic

Diseases," audio cassettes and other professional materials. Free disease handbooks and medication pamphlets are also available to patients.

Please. Let us help your practice with what we teach.

The Arthritis Foundation helps doctors help.



ARTHRITIS  
FOUNDATION.



## PRESCOTT VETERANS ADMINISTRATION HOSPITAL MEDICAL CENTER

Prescott, Arizona 86313. Contacts listed below. Approved for category 1 credit.

### Medical Rounds

1st & 3rd Thursdays, 10:00 a.m.-2:30p.m.

### Surgical Rounds

4th Thursday, 10 a.m.-2:30 p.m.

## TUCSON VETERANS ADMINISTRATION HOSPITAL & MEDICAL CENTER (U of A Tucson)

3601 South Sixty Ave., Tucson, AZ 85723. Contacts listed below. Approved for category 1 credit.

### Medical Surgical Chest Conference

Weekly Tuesday, 2 p.m., Contact: Dr. Young

### Medical Grand Rounds

Weekly Wed., 12-1:00 p.m., VA Hospital Staff Conf. Rm. & (AHSC), Contact: Jay Smith, M.D.

### Surgical Grand Rounds

Weekly Wed., 4:00 p.m., Contact: Dr. Putnam

### Endocrinology Seminar

1st, 3rd, & 5th Thursday, 12-1:00 p.m., Rm. N318, Contact: Dept. of Internal Medicine.

### Grand Rounds

Weekly, Thursday, 11 a.m., Bldg. 107, Contact: J. Fitzharris, D.O.

### Vascular Radiology, Interesting Case Conf.

Weekly Thursday, 12:00 noon.

### Neurology Grand Rounds

Weekly Friday, 12 p.m., Contact: Dr. Sibley.

## YUMA REGIONAL MEDICAL CENTER (U of A, Tucson/ArMA)

2400 Avenue A., Yuma Az 85364. Contact: Alan Winfield, M.D. Approved for category 1 credit.

### Radiology Conference

1st Tuesday, 7:00 a.m.

### Operation Outreach

2nd Tuesday, 6:30 p.m.

### Pathology Conference

4th Tuesday, 7:00 a.m.

### Operation Outreach

2nd Wednesday, 7:00 a.m.

## U OF A HEALTH SCIENCES CENTER

Sponsor: U of A College of Medicine, Tucson, AZ 85724. Robert M. Anderson, M.D., Dir. of CME. Contact: See below. Approved for category 1 credit.

### Anesthesiology Board Review Conference

2nd & 4th Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contacts: Dr. Vaughn & Kryc.

### Anesthesiology Basic/Clinical Sciences Lectures

Weekly Thursday, 4-5 p.m., Room 5403

### Anesthesiology Case Discussion

Weekly Wed., 7:00 a.m., AHSC, Dining Rm. C&D.

### Anesthesiology Resident Presentation

1st Monday, 4-5 p.m., AHSC Dining Room, C&D, Contacts: Drs. Otto & Zehngut.

### Cancer Center Tumor Board Seminar

3rd Tuesday, Monthly, 12-1 p.m., HSC Auditorium, Contact: Cancer Center

### Cardiac Catheterization Conference

Weekly Friday, 4:00 p.m., Contact: Dr. Temkin.

### Cardiology Research Conference

Weekly Tuesday, 7:30 a.m., Contact: Dr. Roeske.

### Tucson Cardiovascular Society

1st Thursday, 6:00 p.m., AHSC, Contact: Dr. Byrne-Quinn

### Clinical Immunology, Allergy

### & Rheumatology Rounds

Every Friday, Noon-1 p.m. Contact: John Boyer, M.D., Dept. of Internal Medicine.

### Cerebrovascular Disease Conference

Mondays, 5-6 p.m., Weekly, Rm. 5505. Contact: Jerry Goldston, M.D., Department of Surgery.

### Dermatology Rounds

Weekly Wed., 11:30 a.m., Contact: Dr. Lynch

### Endocrinology Seminar

Weekly Thursday, 12-1 p.m., Contact: Dr. Johnson

### Emergency Medicine Grand Rounds

Tuesdays, 9 a.m., AHSC, Contact: Dr. Sanders.

### GI Pathology Conference

4th Friday, 1:30 p.m., AHSC, Contact: S. Paplanus

### GI Radiology Conference

2nd. & 4th Mondays, 7:30 a.m., AHSC, Contact: Dr. T. Hunter

### Head & Neck Tumor Management Conference

Weekly Wed., 4:00 p.m., Contact: Dr. Manning

### Hematology-Oncology Clinical Conference

1st & 5th Tuesdays, Noon-1 p.m., Rm. 6505. Contact: S. Salmon, M.D., Dept. of Internal Medicine.

### Medical Grand Rounds

Weekly Wed., 12-1 p.m., AHSC, Contact: Dr. J. Smith.

### Neuromuscular Disease Conference

Weekly Friday, 11:30 a.m., Contact: Dr. Stern

### Neuropathology Review Conference

Thursdays, 8:30 a.m., Rm. 5120, UAHSC.

### Neuroradiology Conference

Weekly Thurs., 5:00 p.m., Contact: Dr. P.C. Christenson

### Neuromuscular Journal Conference

2nd & 4th Thursday, 7-9 p.m., Contact: Dr. Stern.

### Neuropathology Case Review

Weekly Friday, 8:30 a.m., AHSC, Contact: Dr. P. Johnson.

### Neurosciences Seminar

Weekly Tuesday & Friday, 7:30 a.m., AHSC, Contact: Dr. C. Bamford

### Nuclear Medicine

Weekly Thursday, 7:30 a.m., AHSC Radiology Conference Rm.

### Ophthalmology Grand Rounds

3rd Friday, 7:30 a.m., AHSC, Contact: Dr. J. Herschler

### Orthopedic Rounds

Saturday, 8:00 a.m., Contact: Dr. Peltier.

### Pain Conference

3rd Monday, 4-5 p.m., AHSC Dining Rm. C&D, Contact: Drs. Hameroff & Cork.

### Pathology Seminar

Weekly, 4:30-5:30 p.m., AHSC, Rm. 5120. Contact: Dr. P. Finley

### Tucson Pathologist Conference

1st Monday, 7:30 p.m., AHSC, Contact: Dr. A. R. Graham.

### Pediatric Grand Rounds

2nd & 4th Tuesdays, 12 p.m., AHSC, Contact: Dr. H. Thompson.

### Pediatric Problem Patient Conference

Weekly Wed., 8:00 a.m., Contact Dr. Walson

### Pediatric Research Forum

Weekly Tuesday, 7:30 a.m., Contact: Dr. James Jones

### Pediatric Specialty Conference

Weekly Friday, 8:00 a.m., Contact: Dr. Philip Walson.

### Psychiatric Grand Rounds

Weekly Wednesday, 5:30 p.m., AHSC, Rm. 8403, 5th Floor Auditorium

### Psychiatric Monthly Case Conference

2nd Friday, 7:30 a.m., Contact: Dr. Alan Levenson, Palo Verde Hospital

### Pulmonary Rounds

Weekly Friday, 11:30 a.m., Contact: Dr. Benjamin Burrows.

### Chest Radiology

Weekly Monday, 5-6 p.m., Rm. 1535F, UAHSC. Contact: Irwin M. Freundlich, M.D., Dept. of Radiology.

### Neuroradiology Teaching Conference

Weekly Wednesday, 7:30 a.m., AHSC, Contact: Dr. Christenson

### Radiation Oncology Planning Conference

Weekly Friday, 8:30-10:00 a.m., AHSC, Rm. 0655

### Radiology Interesting Case Conference

Weekly Thursday, 12:00 noon, AHSC, Contact: Dr. Freundlich

### Gastrointestinal Radiology

Weekly Tuesday, 5-6 p.m., AHSC, Contact: Radiology Dept.

### Radiology-Rheumatology Conference

Weekly Thursday, 7:45 a.m., UAHSC, Library Rm.1535C.

### Uroradiology (Genitourinary Radiology)

2nd & 4th Mondays, 7:30- 8:30 a.m., AHSC, Contact: Dept. of Radiology

### Renal Pathology Conference

1st & 3rd Thurs., 11:30 a.m., Contact: Dr. Nagle.

### Residents Noon Conference

Weekly Tuesday & Thursday, 12:00 noon. AHSC, Contact: Dr. A. Greensher.

### Resident's Conference

Wednesday, weekly 5-6 p.m., Diag Radiology Conf. Rm.

### Surgical Grand Rounds

Saturdays, 9:00 a.m., Rm. 5403, AHSC, Contact: Dr. Wangenstein.

### Surgical Morbidity & Mortality Conference

Weekly Wed., 8:00 a.m., Contact: Dr. Wangenstein.

### Vascular Surgery Conference

Weekly Tuesdays, 5-6 p.m., AHSC Dining Room E.

### Joint Thyroid Conference

1st & 3rd Tuesdays., 1-2:00 p.m., AHSC, Rm. 6505, Contact: S. C. Werner, M.D.

### Trauma Conference

Monday, 4:00 p.m. UAHSC, Rm. 4410, Contact: Dr. Peltier.

### Toxicology Conference

Weekly Tuesday, 8:00 a.m., Contact: Dr. Keith Likes Section.

### Tucson Ultrasonography Group

Weekly Wed., 4:30 p.m., AHSC, Contact: Dr. I. Freundlich.

### General Urology Conference

Weekly Thursday, 12:00 noon, AHSC & VA Hospital Contact: Dr. G. W. Drach.

# There's more to ZYLOPRIM<sup>®</sup> than (allopurinol).

- 
- From Burroughs Wellcome Co. – the discoverer and developer of allopurinol
  - Patient starter/conversion kits available for easy titration of initial dosage
  - Patient compliance pamphlets available
  - Continuing medical education materials available for physicians



**Prescribe for your patients as you would for yourself.**

*Write "D.A.W.," "No Sub," or "Medically Necessary,"  
as your state requires, to make sure  
your patient receives the original allopurinol.*



Wellcome

Burroughs Wellcome Co.  
Research Triangle Park  
North Carolina 27709



AMERICAN LUNG ASSOCIATION

✚ 1981<sup>®</sup>

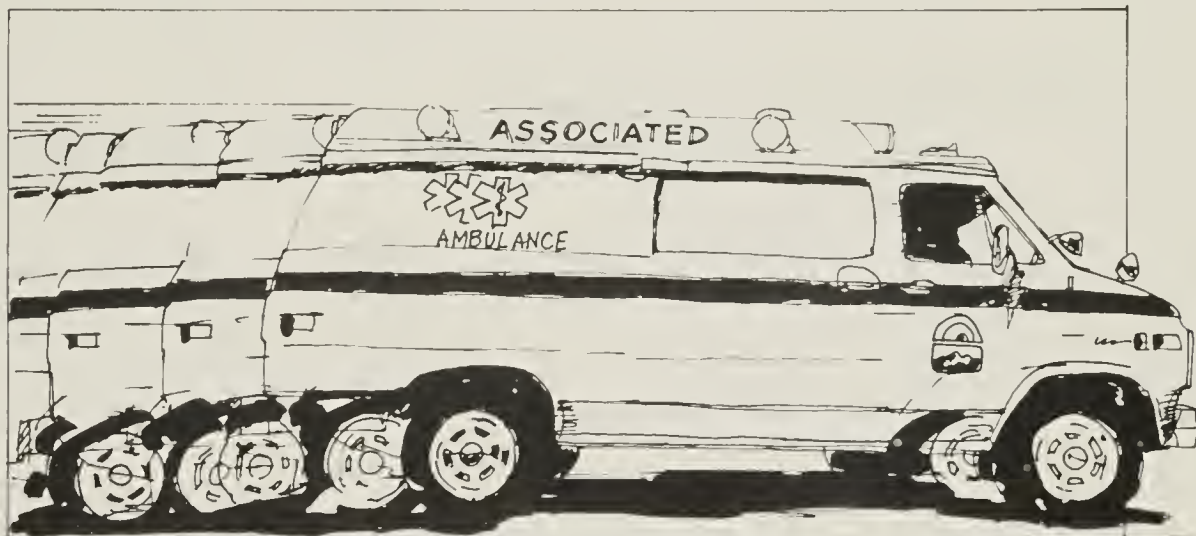
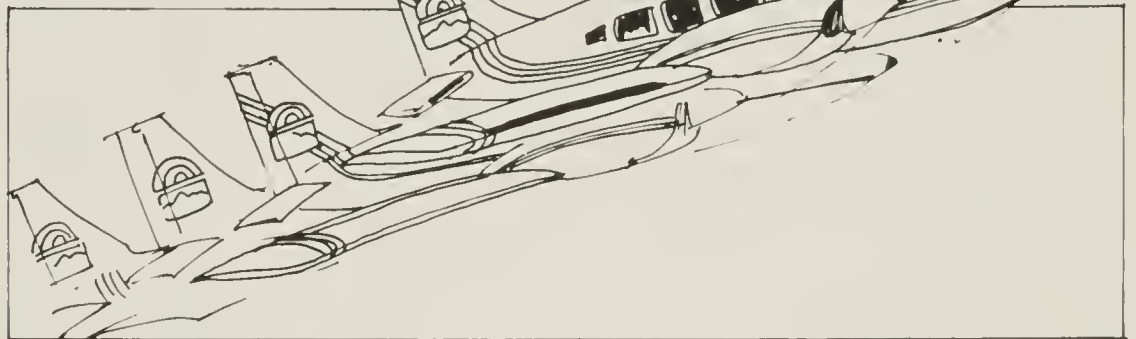
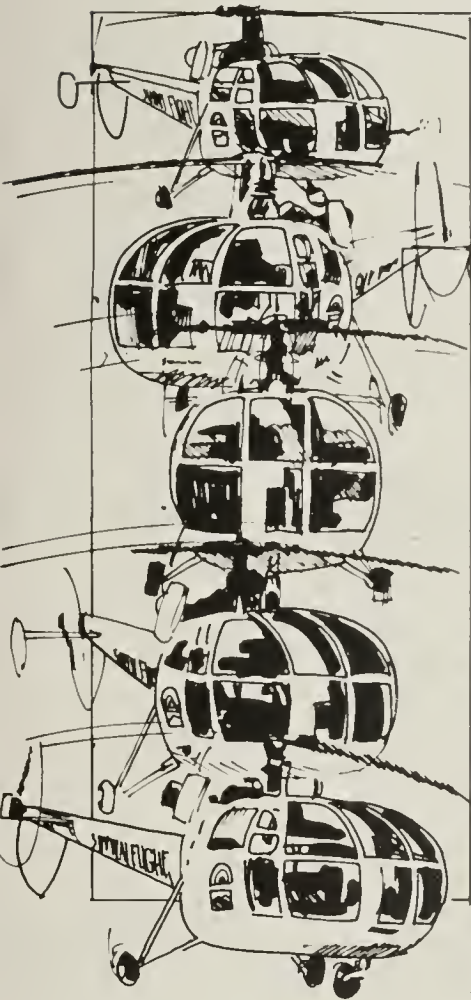


**Merry Christmas**

© 1981 Curtis Publishing Company

Christmas Seals are considered an American tradition. They can be placed on cards, seal letters, packages and presents. Anyone who needs more Christmas Seals should telephone the Arizona Lung Association, (602) 258-7505, or write 1239 East McDowell Road, Phoenix, Arizona 85006

# SURVIVAL FLIGHT



## ASSOCIATED AMBULANCE

Every month, literally thousands of Arizona residents owe their lives to the quick response and skilled care provided by Arizona Medical Transport (AMT)

Survival Flight . . . the state's first hospital-based emergency helicopter service, and Associated Ambulance . . . the state's largest ground ambulance service, combined to form AMT nearly a year ago. Now they have been joined by Survival Flight fixed wing service. Aircraft based in Phoenix and Flagstaff provide patients requiring long distance transport with the same high level of excellent care that AMT insists upon for all its patients.

To learn more about Arizona Medical Transport and how we serve you, or to obtain index cards and phone stickers with our number, call our offices in Phoenix at 241-0500 or Tucson at 623-4326.

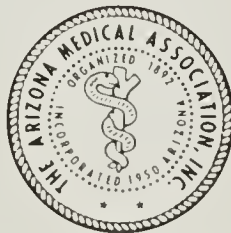
### ARIZONA MEDICAL TRANSPORT, INC.

In an emergency, call 246-HELP or 1-800-352-0605 toll-free statewide





# WE PRINT WITH PRIDE



**THE ARIZONA MEDICAL ASSOCIATION**

*Offers*

**SUBSTANTIAL SAVINGS TO MEMBERS**

**Call or Write "Press" Preston  
Printing Department  
810 West Bethany Home Road  
Phoenix, Arizona 85013**

**Phoenix Members  
Telephone 246-8901**

**Tucson Members  
Ask Operator for Enterprise 265**

**All Other Members  
Call Collect 246-8901**

# MEDICAL BOOKSTORE



The only bookstore in Arizona devoted exclusively to books for the medical profession.

## MEDICAL BOOKSTORE

College of Medicine  
Arizona Health Sciences Center  
Tucson, Arizona 85724  
Phone: 626-6669

## WE BIND YOUR PERIODICALS

Preserve your reference journals as beautifully bound books. Choose from 30 different colors of durable Library Buckram

\$14.00 per volume, (name imprint.75)

\$15.50 Imitation Leather, (rules .25 each)

Inquire about quantity discounts.

Free local pickup and delivery on 10 volumes or more

Minimum order is \$25.00

## ROSWELL BOOKBINDING

2614 North 29th Avenue  
Phoenix, Arizona 85009  
272-9338

## Our trauma team . . .

The ability to mobilize people and facilities on a moment's notice is essential in treating trauma victims. The Lincoln Hospital Trauma Center has adopted a systematic team response to and established protocols for the treatment of the critically injured patient. Because the Lincoln Hospital Trauma Center is a *total medical service*, there is no need to contact a specific physician when making a referral. Simply call the Trauma Center's toll-free line.

**PHYSICIAN REFERRAL LINE**  
**1-800-352-7981**



### John C. Lincoln Hospital TRAUMA CENTER

9211 North Second Street  
Phoenix, Arizona 85020

When time counts . . . count on the 24-hour services of the Lincoln Hospital Trauma Center!



# the fine line between life and death.



# Classified



**"YES, THEY ARE A  
REPUTABLE BILLING  
SERVICE"**

**House of Mailings**  
P.O. Box 9432  
Phoenix, AZ., 85068  
(602) 942-3708

## DOCTORS' CENTRAL DIRECTORY

Helen M. Barrasso, R. N., Director  
For Emergencies or in Absence of Your Doctor  
**CALL 327-7471**  
At Your Service 24 Hours Daily  
2807 East Speedway Tucson, Arizona  
"Established 1932"

## DANNY T. SEIVERT INSURANCE, INC.

Professional Programs  
for Professional People  
70 E. Mitchell Dr., Suite 6  
Phoenix, Arizona 85012  
263-9090

*Tired of all that money going out?*

**For a competitive Quote on:**

- Physicians & Surgeons Malpractice •
- Office Package •
- Automobile •
- Homeowners •



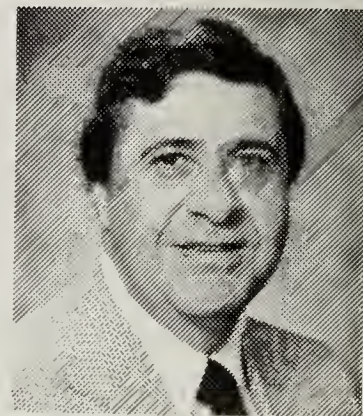
**PHOENIX-AMERICAN INSURANCE AGENCY**  
1101 W. Indian School Road  
264-4684

*representing St. Paul, The Home, Safeco,  
and other reliable companies*

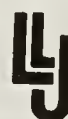
## Louis Jacob

General Agent  
10210 N. 32nd. Street  
Suite 210  
Phoenix, Arizona 85028  
(602) 971-2632

- Tax Shelter Programs
- Individual & Group
- Life, Health and Pensions
- Auto, Fire, Theft



**We Want You With Us**



**L. Louis Jacob Agency**

Complete Insurance Services  
Call Us for an Auto Quote

## SELLARD ENGRAVING

Calligraphy Award Plaques  
Certificates Engraving  
Jewelry Gifts

*One Day Service*

**Town and Country Shopping Center**  
2051-A East Camelback Road  
Phoenix, Arizona 85016  
Telephone: (602) 956-4270



**Relief of Headaches  
Concerning Practice  
Management Problems.**

**JIRA & Assoc.**

**Problem Solvers for the Medical Profession.**

3033 N. Central, Suite 509-C Phoenix, Az 85012  
(602) 279-1884

## PROFESSIONAL OPPORTUNITIES

### GROW WITH US IN SUNNY ARIZONA

The INA Healthplan needs physicians in family practice and most specialties in Tucson and Phoenix. Competitive salaries and comprehensive benefits including a professional development program, retirement plan, and group incentive bonus are provided. If team interaction and casual living interest you, send your CV to: Professional Relations, INA Healthplan, Inc., 6115 North 7th Street, Phoenix, AZ 85014.

### OB-GYN TEACHING COORDINATOR

at Truman Medical Center/East, one of two teaching hospitals for the University of Missouri - Kansas City School of Medicine. Joint faculty appointments in Departments of Family Medicine and OB-GYN. Primary responsibilities teaching OB and office GYN to Family Practice residents, supervision of, and work with, a 4th-year OB-GYN resident, some lesser involvement with medical students, and consultation in high-risk pregnancy problems as they present. Competitive salary, excellent fringes, opportunities for additional practice, if desired. Contact Family Medicine Department, University of Missouri - Kansas City School of Medicine, Truman Medical Center/East, Route 17, Kansas City, Missouri 64139. (816) 373-8210. Attention: Thomas A. Nicholas, M.D., Chairman, or Robert E. Stelle, M.D., Vice-Chairman.

### UNIVERSITY TRAINED GENERAL SURGEON

Currently doing a fellowship in Vascular Surgery seeks practice opportunities in General/Vascular Surgery. Please reply to: Ruben J. Delgado, M.D., Spring Ridge M-26, Whitehall, Pennsylvania 18052.

## REAL ESTATE

### ALL NEW DELUXE SUITES

Deluxe suites (all sizes) to your specifications. Covered parking; Pharmacy; piped-in music. 2 min. to Desert Samaritan Hospital. Lease incentives. Desert Medical Plaza, 941 South Dobson Road, Mesa, AZ (602) 962-4368. Maggie Miller.

### SKI SUNRISE

One, 2 and 3 bedroom condominiums at Sports Village in Pinetop, Arizona - Daily, weekly and monthly rates. For information call: (602) 948-6960 or 957-3936.

### OSBORN MEDICAL CENTER

444 West Osborn Road. A high quality medical building in an excellent Central Corridor location near St. Joseph Hospital has full service office suites available for 1-4 doctor practices at competitive rates. Attached parking garage for doctors and staff, radiology and retail pharmacy on premises. For details call H. Higgins, Manager, (602) 277-2993.

### EXCEPTIONAL PHOENIX CONSTRUCTION

Two beautiful custom built homes one block away from new medical complex located at Tatum and Shea. Ideal 3 or 4 bedroom homes, for professionals interested in close proximity to offices. Situated on quiet cul-de-sac. Excellent financing available. Call Miriam Carey (602) 957-8350.

**A. L. Harris and Associates**  
3119 East Lincoln Drive  
Phoenix, Arizona 85016

### FLAGSTAFF MEDICAL BUILDING FOR LEASE

Located next to the Flagstaff Hospital and Medical Center on the corner of Forest and Beaver Streets. A pharmacy, laboratory and radiology are in the complex plus, parking easily accessible to either your office or the hospital makes the Flagstaff Medical Building the desired choice for the largest number of practicing physicians in any medical building located in Northern Arizona. Your customized medical office suite (ranging from 800 to 2000 sq. ft.) is now available at a most reasonable cost. Please contact: Bruce O. Utterback, C.P.H., Flagstaff Medical Building, 1355 N. Beaver Street, Flagstaff, Arizona 86001. (602) 774-4416.

### PART-TIME NORTHSIDE MEDICAL OFFICE

Fully furnished, five afternoons a week - Next door to John C. Lincoln Hospital. Call: Bruce Thoeny, Manager, (602) 264-5553.

### MEDICAL SUITES FOR LEASE

Medical office space available for lease, with suites ranging from 718-1648 square feet, in the North Phoenix Medical Center, 9200 North Third Street, adjacent to John C. Lincoln Hospital and Trauma Center. Reasonable rental rates are offered with flexible lease terms and leasehold improvement allowance. For further information, contact Harold Kennedy, Association Administrator, John C. Lincoln Hospital and Trauma Center, 9211 North Second Street, Phoenix, Arizona 85020, or call (602) 943-2381, Ext. 1201.

### SATELLITE OFFICE

Bell Road location in northwest Phoenix. Who will be serving your patients from the far northwest area three years from now. Should your practice consider adding an additional office in this excellent growth area. Write Westbell Partnership, 13821 North 35th Drive, Phoenix, Arizona 85023, or phone: (602) 269-7541.

### BEAUTIFUL CONDOMINIUM

**Condominios Pilar**  
**San Carlos Bay, Mexico**  
**For Rent**

Two Bedroom, Two Bath, Fully equipped. Beautiful 180 degree view of the ocean. Swimming pool. Boating. Fishing. Restaurant. \$65 a day plus utilities and maid service. Call (602) 795-4925 for reservations. Ask for Marge.

### BELL ROAD LOCATION

Fast growing northwest area, frontage on Bell Road which is major arterial for entire north side of Phoenix. New 31,000 sq. ft. Professional Building with fountains, courtyard, and garden atmosphere. Four miles from Sun City, yet located among several large high technology employers (Sperry, Honeywell, Digital Systems, General Telephone and ITT). Many young growing families in the area. Convenient to new hospital facility at 55th Avenue and Thunderbird as well as Greenway and Bell Road Emergicenters. An opportunity to get into a really first class location in an outstanding area. Write Westbell Partnership, 13821 North 35th Drive, Phoenix, Arizona 85023, or phone: (602) 269-7541.

### PINETOP MOUNTAIN CABIN - FOR RENT

White Mountain summer home. Ideal now for Winter activities, such as skiing the White Mountains of Arizona. Call Dr. Carl Peiser in Winslow - (602) 289-2371 days, 289-5081 evenings.

### FLAGSTAFF OFFICE AVAILABLE FOR RENT

General practice or specialty, lab, x-ray, nurses station, surgery room, two examining rooms, large waiting room. Contact: Fred Croxen, P.O. Box 542, Flagstaff, AZ 86002 (602) 774-1020.

Continued on next page



### ATTENTION PROFESSIONALS

Why rent when you can own? Are you renting your telephone system from Mountain Bell? If so, you are over-paying! Why not let the professional at Interstate Telecommunications, Inc. compare your Bell system against our systems. We can show you a cost effective, state-of-the-art, telephone system for a fraction of the cost; because with the money you normally pay Bell, you will be paying on your own system. Give us a call today! We've got your number. Interstate Telecommunications, Inc., 3507 North Central Avenue, Suite 300, Phoenix, Arizona 85012. Telephone: (602) 263-5332.

### FOR SALE

Radiometer blood gas analysis system. BMS3 - MK2 model with PHM 72 digital acid-base analyzer. For details call Pat at (602) 247-7725.

### FOR SALE

One complete refraction Room Equipment, Greens Refractor, Hydrolic chair, Slit Lamp, Loose Lens set with frame and beautiful cabinet. Remote control switches and for hand instruments - at \$3500. E. G. Barnet, M.D., (602) 264-7957.

### FOR SALE

23.52 carat emerald cut aquamarine ring, white gold setting. GIA appraisal \$2980. Sacrifice \$1500. Write: P.O. Box 121, c/o Arizona Medicine, 810 West Bethany Home Road, Phoenix, Arizona 85013.

### ANONYMOUS SHOPPER

Let us be your personal shopper for that special Birthday, Anniversary or Holiday Gift! Your time is valuable . . . let Anonymous Shopper help you! Our services include: Selection of Gift, Gift Wrap, Special Card, Delivery Service upon request, Reminder service. We also arrange surprise parties, We handle the details . . . You receive the warm thanks. (602) 990-2771.

## This publication is available in microform.



**University Microfilms  
International**

Please send additional information  
for \_\_\_\_\_  
(name of publication)

Name \_\_\_\_\_  
Institution \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, MI 48106  
U.S.A.

30-32 Mortimer Street  
Dept. P.R.  
London WIN 7RA  
England

# ARIZONA MEDICINE

## INDEX TO VOLUME 38

JANUARY 1981 — DECEMBER 1981

### Index to Pages

| Issue     | Pages   |
|-----------|---------|
| January   | 1-74    |
| February  | 75-154  |
| March     | 155-242 |
| April     | 243-318 |
| May       | 319-408 |
| June      | 409-494 |
| July      | 495-572 |
| August    | 573-664 |
| September | 665-736 |
| October   | 737-810 |
| November  | 811-880 |
| December  | 881-956 |



JOURNAL OF ARIZONA MEDICAL ASSOCIATION

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO



# AUTHOR INDEX

Aapro, M.D., Matti S., 772, 843  
 Ahmann, M.D., Frederick, 195  
 Alepa, M.D., F. Paul, 115  
 Michael S. Altman, M.D., 904  
 Anderson, M.D., Robert M., 381  
 Aristizabal, M.D., Silvio A., 613, 701

Bamford, M.D., Colin R., 351, 455  
 Becker, M.D., Gerald H., 193  
 Becker, R.N., F.N.P., Ruth M., 774  
 Benchimol, M.D., Alberto, 898  
 Benson, Ph.D., Bryant, 789  
 Ber, Abram, M.D., 711  
 Beutler, Ph.D., Larry E., 351, 451  
 Bigelsen, M.D., Harvey 711  
 Bittker, M.D., Thomas E., 191, 708  
 Bixeman, M.D., Wayne W., 621  
 Block, M.D., Marshall B., 47, 119, 198, 380, 711, 788  
 Bonnell, M.D., Mark D., 510  
 Borkovic, M.D., Steven P., 902  
 Borton, M.D., Lindie K., 598  
 Boyer, M.D., John T., 533  
 Brenden, B.S., M.S., Lloyd, 619  
 Brey, Medical Student, Robin L., 344  
 Burdick, M.D., George E., 267  
 Butler, M.D., Byron C., 187

Caldwell, M.D., Hayes, 833  
 Capp, M.D., M. Paul, 922  
 Carlile, M.D., William K., 382  
 Carmody, M.D., Raymond F., 349  
 Casey, M.D., William J., 373  
 Cherny, M.D., Walter B., 107, 187  
 Chinichian, M.D., A., 765  
 Clark, M.D., E. T., 763  
 Cloud, M.D., Daniel T., 535  
 Clymer, M.D., John T., 46, 119, 198  
 Coaker, M.D., Lloyd A., 446  
 Cobb, M.D., L. M., 33  
 Cohen, M.D., Samuel L. 915  
 Copeland, M.D., Jack G. 917  
 Corrigan, Jr., M.D., James J., 436  
 Coulthard, M.D., Stanley W., 712  
 Creed, M.D., Luther, 32

Dawson, M.D., Brenda, 602  
 Desser, M.D., Kenneth B. 21, 181, 264, 515, 595, 692, 759, 831, 898  
 Diethrich, M.D., Edward B., 94  
 Dippe, M.D., F.A.C.P., Stephen E., 96  
 Dorr, M.S., R.Ph., Robert T., 271  
 Dudley, Jr., M.D., Arthur V., 924  
 Duque, M.D., Antonio, 613  
 Dunn, M.D., Jack H., 26

Ehrlich, M.D., Ira B., 756  
 Ewy, M.D., Gordon A., 828

Fisher, M.D. Jeffrey R. 833  
 Fitzgerald, M.D., John W., 756  
 Fordney, M.D., Diane S. 710  
 Freundlich, M.D., Irwin M., 359  
 Fung, M.S., R.D., E. E., 102

Garewal, M.D., Ph.D., Harinder, 912  
 Georgitis, M.D., William J., 693  
 Giever, M.D., Richard J., 613  
 Gilsdorf, M.D., Robert B., 33  
 Glouberman, M.D., Stephen, 697  
 Goff, Jr., M.D., Nathan W., 832  
 Goldner, Ph.D., Andrew M., 289, 631, 924  
 Gorman, M.D., F.A.C.P., Warren F., 275, 616  
 Goss, M.D., J. Catlin, 33  
 Grace, M.D., R. Randall, 176  
 Grogan, M.D., Thomas M., 524

Haber, M.D., Kai, 359  
 Hagin, M.D., Gerald, 109  
 Hansen, M.D., Ronald D., 759, 839  
 Harter, M.D., Cheryl A, 711  
 Harries, R.T., Lucy L., 712  
 Harrison, Ph.D., R.D., Gail G., 102  
 Hecht, M.D., Frederick, 21, 185, 608, 699, 906  
 Heins, M.D., Marilyn, 199, 289  
 Helme, M.D., William B., 382  
 Hensing, M.D., John A., 768  
 Hernried, M.D., H. Peter, 94  
 Hessel, M.D., Samuel J., 193, 619  
 Hicks, M.D., Mary Jane, 438, 524  
 Hofeldt, M.D., Fred D., 693  
 Hutter, Jr., M.D., John J., 188

Ito, Jr., M.D., James I., 626

Jensen, M.D., Douglas P., 689  
 Johnson, M.D., Janet A., 99, 373  
 Johnston, M.D., Howard H., 45  
 Jolley, M. T., (ASCP) Carolyn, 524  
 Jones, M.D., James F., 438

Kaiser-McCaw, Ph.D., Barbara, 699  
 Kanner, M. D., Steven R., 98  
 Kaszniak, Ph.D., Alfred W., 451  
 Katzenberg, M.D. Charles, 828  
 Kaufman, M.D., Roger W., 45  
 Kelly, M.D., John J., 182  
 Kennedy, M.D., John W., 290, 471, 632, 923, 924  
 Kettel, M.D., Louis J., 48, 120, 199, 289, 343, 460, 534, 631, 710, 780, 789, 853, 922  
 Kidd, M.D., Gerald S., 693  
 Koopot, M.D., Ravi, 94  
 Kozarek, M.D., Richard A., 521, 765  
 Kuban, M.D., M.S., Donald J., 699  
 Kuberski, M.D., Timothy T., 510  
 Kurtz, M.D., Clyde W., 538, 782, 789

Larson, M.S., Douglas F., 917  
 LaWall, M.D., John S., 457  
 Lebowitz, Ph.D., Michael D., 596  
 Levine, M.D., Bernard E., 431  
 Levy, M.D., Jonathan M., 114, 193, 619  
 Lewkowitz, M.D., Franklin R., 114  
 Loes, M.D., Michael W., 777  
 Lundell, M.D., Dwight C., 19

**Bold Face Type Indicates Scientific Article**

**Mammana, M.D., Robert B., 917**  
 Manning, M.D., Michael R., 460  
**Martin, M.D., Russell D., 268**  
**Meadow, M.A., Rosalyn, 28**  
**Morse, M.D., Harold G., 510**

**McCaw, Ph.D., Barbara K., 608, 906**  
**McCoy, M.D., Karen S., 432**  
**McFarland, M.D., Jack O., 193**  
**McGrath, M.D., William B., 112, 845, 854, 914**  
 McGarey, M.D., Gladys T., 711  
 McGarey, M.D., William A., 711  
**McLorie, M.D., F.R.C.S. (C), Gordon A., 847**  
**McPhail, M.D., Jasper L., 262**

**Nagle, M.D., Ph.D., Raymond B., 367**  
 Newman, Joyce, 461  
 Nichols, M.D., M.P.H., Andrew W., 37  
**Niggemann, M.D., Elaine H., 705**  
**Norton, M.D., Lawrence W., 378**  
 Novak, M.D., Ph.D., Milan, 120

Olsztyn, M.D., Stanley R., 771  
 Orient, M.D., Jane M., 278

**Padnick, M.D., Marvin B., 689**  
**Patton, M.D., Dennis D., 455**  
**Payne, Ph.D., Claire M., 367**  
**Pelberg, M.D., Arthur, 513**  
**Phibbs, M.D., Brendan, 590**  
**Pond, M.D., Gerald D., 32**  
**Prian, M.D., Gregory W., 619**

**Quan, M.D., Stuart F., 446**

**Rate, M.D., Robert G., 510**  
 Reed, M.D., John C., 711  
**Reynolds, M.D., Arden F., 26**  
**Rimsza, M.D., Mary E., 705**  
**Robertson, M.D., Donald S., 848**  
**Rucker, M.D., Charles M., 176**  
**Rutala, M.D., Paul J., 280, 531**

Sabers, Ph.D., Darrell L., 531  
**Salomon, M.D., Neal W. 917**  
**Sampliner, M.D., Richard E., 376**  
**Sandberg, M.D., Avery A., 608, 906**  
**Sanowski, M.D., Robert A., 521, 765**  
**Santos, M.D., R., 765**  
**Sattenspiel, M.D., FACOG, Edward, 28**  
**Savajiyani, M.D., Rajendra, 898**  
**Scheiber, M.D., Stephen C., 777**  
**Schwartz, M.D., M.P.H., Robert Allen, 759, 598, 902**  
**Seeger, M.D., Joachim F., 349**  
**Seidenfeld, M.D., John J., 344**  
**Shanfield, M.D., Stephen B., 444**  
 Shenker, M.D., Lewis, 48  
**Sievers, M.D., Maurice L., 833**  
**Siler, M.D., John R., 359**  
**Siroky, R.N., B.S.N., Karen A., 917**  
**Smith, M.D., Janice R. L., 349**

Snyder, D.P.M., A.A.C.F.S., Martin, 759  
**Sonntag, M.D., Volker K. H., 23, 182**  
**Spark, M.D., Ronald P., 921**  
**Spiegel, M.D., Richard M., 680**  
**Stegman, M.D., Cary J., 114**  
**Steinbronn, M.D., Del V., 351, 701**  
**Steinhoff, M.D., Neil G., 19**  
**Stern, M.D., Lawrence Z., 99, 373**  
**Stillman, M.D., F.A.C.P., Paula L., 531, 774**  
**Surwit, M.D., Earl, 613**  
**Szablewski, R.T., 915**

**Takeshita, M.D., Ruth T., 833**  
**Targovnik, M.D., Jerome H., 519**  
**Thomson, M.D., Brendan D., 516**  
**Titche, M.D., Leon L., 712**  
**Todd, M.D., F.A.C.S., Iain A. D., 847**  
**Trent, Ph.D., Jeffrey M., 836**  
**Tri-Hospital Perinatal Mortality Conference, 187**

**Vaughn, M.D., Cecil C., 176**  
**Vaughn, III, B.A., Cecil C., 176**  
**Vawter, M.D., Michael, 687**  
**Verso, M.D., M. Antonia, 519**  
**Villar, M.D., F.A.C.S., Hugo V., 602**  
**Vyvial, Theona, 699**

**Wachter, M.D., Richard D., 712**  
**Wagner, M.S., Richard C., 769**  
**Wangensteen, M.D., Stephen L., 378**  
**Weinstein, M.D., Philip R., 349**  
**Weese, M.D., William C., 832**  
**Weiss, Ph.D., Lillie, 28**  
**Werner, M.D., D.Sc. (Med.) Sidney C., 356**  
**Wood, M.D., MacDonald, 528**  
**Wood, M.D., Terry S., 188**

**SUBJECT INDEX**

1981 Annual Meeting  
 ArMA Auxiliary Board of Directors, 216  
 ArMA Auxiliary Convention Committee, 215  
 ArMA Auxiliary Schedule of Events, 213

**Bold Face Type Indicates Scientific Article**



ArMA Board of Directors, 204  
Guest Speakers, 212  
Program, 206  
Schedule of Events, 206  
Scientific Assembly Committee, 211  
Scientific Exhibits, 212

#### *Annual Meeting Highlights*

America is a Land of Wonders, 535  
ArMA Auxiliary Workshops, 550  
ArMA Convention Awards, 553  
Photos, 204  
Presidential Address, 538  
Resume of the House of Delegates, 541

#### *ArMA Reports*

Ad Hoc Indigent Health Care Committee, 645, 715, 855  
Ad Hoc Long Range Planning Committee, 52, 556  
Articles of Incorporation and Bylaws Committee, 385, 933  
Board of Directors, 218, 475, 636, 642, 717, 932  
Executive Committee, 52, 295, 474, 635, 716, 717, 932  
Finance Committee, 477  
Governmental Services Committee, 123  
Health Manpower Committee, 473, 556, 931  
Legislative Committee, 50, 294, 383  
Maternal and Child Health Care Committee, 716  
Medical Economics Committee, 293  
Medical Education Committee, 473, 931  
Occupational Health Committee, 931  
Physician Rehabilitation Committee, 49, 642  
Professional Committee, 124, 714  
Public Relations Committee, 477, 931  
Scientific Assembly Committee, 220, 556, 645, 792

#### *Arthritis*

**HLA-B27 Related Arthropathies in Hopi and Navajo Indians, 510**

*Briefly Noted, 791*

#### *Cardiology*

**Clinical Applications of the Intra-Aortic Balloon Pump, 19**  
**Clinical Utility of Serum Digoxin Levels, 828**  
**Dilemma of Atypical Abdominal Pain: A Case of Celiac Artery Stenosis, 94**  
**Editorial Comment, 21, 181, 264, 515, 595, 692, 759, 831**  
**MB Creatine Kinase Isoenzyme, 513**  
**Medical Care and Cardiology in the People's Republic of China, 262**  
**Mitral Valve Prolapse, The Internists Dilemma, 756**  
**Percutaneous Transluminal Angioplasty: A Comprehensive Overview, 680**  
**Percutaneous Transluminal Angioplasty. Of Ilifermoral Arteries, 687**  
**Percutaneous Transluminal Coronary Angioplasty, (P.T.C.A.), 689**  
**Primary Pulmonary Hypertension: A Review, 898**  
**Surgical Management of Post-Infarction Aneurysm of the Cardiac Ventricle, 176**  
**Ventricular Ectopy vs Aberrant Conduction: Problem, Theory, and some Practice, 590**

*Comings and Goings, 53, 128*

*Correspondence, 45, 382, 711, 923*

#### *Chest Medicine*

**A Case of Unilateral Neurogenic Pulmonary Edema, 832**  
**Autoantibodies in Cryptogenic Fibrosing Alveolitis, 516**  
**Relationship Among Silica, Silicosis, and Lung Carcinoma, 596**

**Bold Face Type Indicates Scientific Article**

#### *Dermatology*

**Ingrowing Toenails Fact or Fancy, 759**  
**Kaposi's Sarcoma Presenting in the Homosexual Man — A New and Striking Phenomenon!, 902**  
**Folliculitis, A Common Acneiform Condition of Middle Age, 598**

#### *Diagnostic Advances in Clinical Medicine*

**Advances in Diagnosis and Clinical Laboratory Testing in Immunologic Disorders, 438**  
**Diagnostic Electron Microscopy, 367**  
**Diagnostic Imaging Dilemma: Guidelines in Decision Making of the Primary Care Physician, 359**  
**Diagnosis and Treatment of Male Erectile Dysfunction, 351**  
**Diagnosis and Treatment of Sleep Apnea, Syndrome in Adults, 446**  
**Differential Diagnosis of Insomnias and Parasomnias, 451**  
**Guidelines for the Serodiagnosis of Acute Viral Hepatitis, 376**  
**Illness and Bereavement, Unrecognized Implications for Prevention, 444**  
**Intravenous Cerebral Angiography, Early Clinical Experience, 349**  
**Introduction, 343, 431**  
**Lung Toxicity Resulting from Exposure to Nitrogen Dioxide: A Possible Occurrence Due to Titan Missile Accidents, 344**  
**Muscle Biopsy: Recent Advances in Diagnostic Techniques, 373**  
**Narcolepsy - A Brief Update, 455**  
**Needle Aspiration Biopsy of Thyroid Nodules, 378**  
**Sleep Disturbance in Psychiatric Disorders, 457**  
**Sudden Infant Death Syndrome, 432**  
**Thyroid Function Tests in Nonthyroidal Illness are Diagnostically and Prognostically Important 356**  
**Transient Erythroblastopenia of Childhood, 436**

#### *Editorials*

**Definition of Death, 199**  
**Natural Allies-Auxiliaries, 198**  
**Skepticism 854**  
**Where Should the Accent in Continuing Medical Education be Placed? 381**

#### *Editor's Editorial*

**Holistic Medicine: Is It all Good? 380, 711**  
**Hospital on Every Corner?, Do We Need a 47**  
**Physician Advertising: The Best Method, 119**  
**There are Only Two Sure Things in Life: Death and Taxes, or are There, 198**  
**Why Hospitals are Practicing Medicine, 788**

#### *Dean's Editorials*

**Computer and Imaging, The, 922**  
**Genetic Counseling, 47**  
**Human Experimentation and the Law, 120**  
**Hyperthermia in Cancer Therapy, 289**  
**Infertility Clinic 710**  
**Laboratory Tests In Immunological Diseases, - Teaching Cost Containment, 533**  
**Motivation, Awards and Recognition, 853**  
**Pineal Gland and the Search for Its Secrets, The, 780**  
**Student and Faculty Communications, 289**  
**University of Arizona College of Medicine Admissions Procedure, 631**  
**Women in Medical School, 199**

#### *President's Editorial*

**AMA Membership, 119**  
**Market-Place Competition: The Answer to Cost Escalation? 782**  
**Natural Allies, 198**

Prescription Drug Misuse, Abuse and Diversion, **46**  
President's Comment, **789**

*Auxiliary Highlights*

Auxiliary Project Teaches Good Health Habits, New State, **48**  
Communication, Facets of, **289**  
Communications Was. . . The Name of the Game, **461**  
Health Education, **200**  
"Just Tremendous!", **534**

*Endocrinology and Metabolism*

Diabetes Mellitus, Effect of Blood Sugar Control on the  
Microangiopathy of, **519**  
Ectopic Hormone Production - Newer Perspectives, **96**  
Pituitary Gland CT, **763**  
Syndrome, Euthyroid Sick, **693**

*Future Meetings*, **53, 129, 222, 296, 385, 478, 557, 646, 719, 793, 856, 933**

*Gastroenterology and Liver Disease*

Adult Shunt Ascites, **182**  
Campylobacter Enterocolitis, **904**  
Cystadenomas: Microcystic Adenomas of the Pancreas, **602**  
Endoscopic Papillotomy in Complicated Biliary Tract  
Disease, **521**  
Esophageal Scleroderma, **98**  
Flexible Sigmoidoscopy, **267**  
Food Borne Disease, **697**  
Skeletal Fluorosis from Eating Soil, **833**  
Use of Transhepatic Biliary Stents, In the Treatment of  
Obstructive Jaundice, **765**

*Hematology*

Subacute Combined Degeneration, Neutrophilic  
Hypersegmentation, and the Absence of Anemia, A Case  
Report, **768**

*In Memorium*, **121, 200, 462**

*Medical Genetics*

Cancer Cytogenetics, Recent Advances in, **836**  
Genetic Counseling, An Overview of, **769**  
Immunogenetics and Immunology. I. Key to the Future, **699**  
Contemporary Mangement of Leukemia: Acute Leukemia  
and Preleukemia, **906**  
Contemporary Management of Leukemia: Cytogenetic  
Diagnosis and Monitoring of Chronic Myelocytic Leukemia,  
**608**  
Marfan Syndrome and Similar Genetic Disorders. The  
Marfan Syndrome, **185**  
Screening People of Jewish Origin for Tay-Sachs Disease  
Carriers, **21**

*Medical History*

Arizona Territorial Medical Society, **290**  
Extracts from Arizona Medical Association, **471, 632, 925**  
Mastoiditis in Prehistoric Arizona Indians, **712**

*Neurology*

Computed Tomography in the Diagnosis of Lumbosacral  
Disc Herniation, **839**  
McArdle's Disease, **99**  
Mutism, Akinesia, and Fever. A Review, **268**  
Trans-sphenoidal Hypophysectomy for Intractable Cancer  
Pain, **23**

*Nutrition*

Nutrition and the Elderly Patient, **102**

*Obstetrics and Gynecology*

Delivery of Premature Infants, **187**  
Sinusoidal Patterns, **107**

*Oncology*

Beta<sub>2</sub>-Microglobulin: A Potentially Useful Marker For  
Hematologic Malignancies, **912**  
Carcinomatous Meningitis. A Review, **109**  
Extravasation of Vessicant Antineoplastics: Clinical and  
Experimental Findings, **271**  
Invasive Carcinoma of the Cervix, Treated Primarily with  
Radiation Therapy: University of Arizona Experience, **613**  
Lymphoreticular Malignancies, Immunologic and  
Cytochemical Characterization of, **524**  
Pancreatic Carcinoma, Approaches to the Treatment of, **772**  
Pediatric Solid Tumors II: Rhabdomyosarcoma, **188**  
Primary Brain Tumors in Adults, Management of, **26**  
Prevention of Chemotherapy-Induced Nausea and Vomiting  
in Patients with Cancer, **843**  
Prostatic Carcinoma, Treatment of, **701**

*Pediatrics*

A Community-Based Pediatrics Rotation for Medical  
Students, **774**  
Sexually Abused Child: Evaluation and Treatment, **705**

*Psychiatric Disorders*

Alcoholic, Key Concepts in Identifying the, **191**  
Malingering, **616**  
Neuroleptic Drugs and Tardive Dyskinesia, **708**  
Pain, Threshold of, **914**  
Psychosurgery: Government Regulating Medicine, **275**  
The Impaired Resident, **777**  
A Two-Day Sexuality for OB-GYN Residents, **28**  
Understanding, **112**  
Virtue, **845**

*Radiology*

Case of the Month, No. 49, 32, "Ovarian Vein Syndrome"  
Answer, **37**  
Case of the Month, No. 50, 114, Answer: Double Channel  
Pylorus, **118**  
Case of the Month, No. 51, 193, Answer: "Mature" Pancreatic  
Pseudocyst Incidental Large Right Renal Cyst, **194**  
Case of the Month, No. 52, 619, Answer: Traumatic Rupture  
of the Thoracic Aorta, **620**  
Case of the Month, No. 53, 915, Answer: Oblique Portable  
Chest Films. Left Lower Lobe Pneumonia, **916**

*Special Articles*

Arizona College of Medicine, An Update, the University of,  
**780**  
Housestaff Evaluation Using Patient Instructors: A Brief  
Report, **531**  
Media Committee: A Model First Year, The Medical Society,  
**921**  
Medicaid, Beyond, **37**  
Socialism: From Doctor's Dream to Doctor's Dilemma, **278**  
Starch Blocker, **848**

*State of Art*

Arthritis, Juvenile Rheumatoid, **115**  
Prostatic Cancer, A Current View of, **195**  
Sexually Transmitted Diseases, An Approach to, **280**  
Vaccines on the Horizon, New, **626**

*Surgery*

Cardiac Transplantation, The Arizona Experience, **917**  
Microvasostomy, **847**  
Orbital Floor "Blowout" Fractures, Clinical Management,  
**621**  
Regional Anatomy Regarding the Placement of Central  
Vebous Cannulas, **33**  
Scrotal Cystocele, **528**

**Bold Face Type Indicates Scientific Article**



## INDEX TO ADVERTISERS

|                                              |                    |                                    |                           |
|----------------------------------------------|--------------------|------------------------------------|---------------------------|
| ACEP Symposium .....                         | 935                | Janssen Pharmaceutica              |                           |
| Arizona Laminating .....                     | 895                | Nizoral .....                      | 886, 887                  |
| Arizona Medical Transport, Inc.....          | 943                | John C. Lincoln Hospital .....     | 941                       |
| Boots Pharmaceuticals                        |                    | Medical Bookstore .....            | 941                       |
| Ru-Tuss .....                                | 891, 892, 893, 894 | Mica Insurance Co. ....            | 887                       |
| Rufen .....                                  | 927, 928, 929, 930 | National Medical Enterprises ..... | 891                       |
| Burroughs Wellcome                           |                    | Phoenix/American Insurance .....   | 941                       |
| Zyloprim .....                               | 941                | Prekup and Associates .....        | 941                       |
| Camelback Hospital .....                     | 890                | Roche Labs                         |                           |
| Classified Ads .....                         | 946, 947, 948      | Valium .....                       | Second Cover, 883, 884    |
| Computed Neuorological Scanning Center ..... | 897                | Bactrim.....                       | Third Cover, Fourth Cover |
| Doctors Central Directory .....              | 946                | Roswell Bookbinding .....          | 941                       |
| Eli Lilly & Co.                              |                    | Sellard Engraving .....            | 941                       |
| Ceclor .....                                 | 889                | Danny T. Sievert                   |                           |
| Health Agencies of the West .....            | 896                | Insurance.....                     | 941                       |
| House of Mailings .....                      | 946                | St. Luke's Hospital .....          | 931                       |
| Louis Jacobs .....                           | 946                | United Video Services .....        | 891                       |
|                                              |                    | Valley National Bank .....         | 887                       |
|                                              |                    | Wickenberg Inn .....               | 891                       |











